

1983

WYOMING MINERAL YEARBOOK

Prepared by:

John T. Goodier
Chief of Mineral Development

and

Dale S. Hoffman
Mineral Resource Research Specialist

Assisted by:

Helen Gilbert
Mineral Division Secretary

Mineral Division
State Department
of
Economic Planning and Development

Cheyenne, Wyoming

December 1983

Duplication or quotation of material in this publication is welcomed, but it is requested that the Mineral Division, Department of Economic Planning and Development be credited.

TABLE OF CONTENTS

INTRODUCTION.....	1
TOTAL STATE VALUATIONS.....	3
1983 STATE MINERAL VALUATION.....	4
WYOMING MINERAL INDUSTRY TAX TABLES.....	5
WYOMING MINERAL COMMODITIES REVIEW.....	16
COUNTY MINERAL PRODUCTION AND VALUATION, 1983.....	63
Albany County.....	64
Big Horn County.....	65
Campbell County.....	67
Carbon County.....	69
Converse County.....	71
Crook County.....	73
Fremont County.....	75
Goshen County.....	77
Hot Springs County.....	78
Johnson County.....	80
Laramie County.....	82
Lincoln County.....	83
Natrona County.....	85
Niobrara County.....	87
Park County.....	88
Platte County.....	90
Sheridan County.....	91
Sublette County.....	92
Sweetwater County.....	94
Teton County.....	96
Uinta County.....	97
Washakie County.....	99
Weston County.....	101
WYOMING MINERAL PRODUCTION AND VALUATION, 1978-1982.....	103
WYOMING MINERAL PRODUCTION ESTIMATES, 1983-1987.....	119
SELECTED REFERENCES.....	125

INTRODUCTION

The minerals industry is by far the largest single contributor to the valuation of the State of Wyoming. 1983 valuation on minerals produced in 1982 was \$5,624,803,530. This is 71% of the state's valuation and greater than the valuation of the entire state in 1980.

This report outlines the distribution and status of the minerals industry in Wyoming during 1982. The primary mineral commodities produced in the state are reviewed individually and a section on historical mineral production is included in the Yearbook. This section enumerates yearly production figures for the state's primary mineral commodities; bentonite, coal, iron ore, natural gas, petroleum, trona, and uranium from their first commercial development to 1982. The production projections for the next five years give an indication of growth or decline of a particular mineral commodity in both the state and individual counties. Estimates beyond five years are not made because of the increasing difficulty in making accurate predictions due to changing economic factors, governmental regulation, decreasing reserves and international developments.

The narrative sections present an overview of the minerals produced in the state and the status of the mineral industry in each county.

The reader desiring more detailed information on the location of various projects or resources is referred to the Oil and Gas Map of Wyoming and the Mines and Minerals Map of Wyoming, available from the Geological Survey of Wyoming and the DEPAD Mineral Development Monitoring System.

Pie charts for county mineral valuation were prepared for those counties where minerals accounted for at least 25% of the total assessed valuation.

Production figures in this Yearbook are net or taxable figures and do not include federal or state royalty production because it is not included in the

assessed valuation. The difference between gross production varies from commodity to commodity because of the changes in percentage of government royalties and the variation on how much is produced from government leases and from private leases. The gross production and the taxable production are as follows:

	Oil (bbls)	Natural Gas (mcf)	Coal (tons)	Uranium (tons)
Gross Production	117,898,667*	459,321,013*	108,056,305	3,914,376
Net Production	108,055,462	351,192,737	104,014,096	3,895,510

	Iron Ore (tons)	Bentonite (tons)	Trona (tons)	Gypsum (tons)
Gross Production	3,276,005	2,362,023	11,006,861	262,993
Net Production	3,276,005	2,345,914	10,073,690	262,993

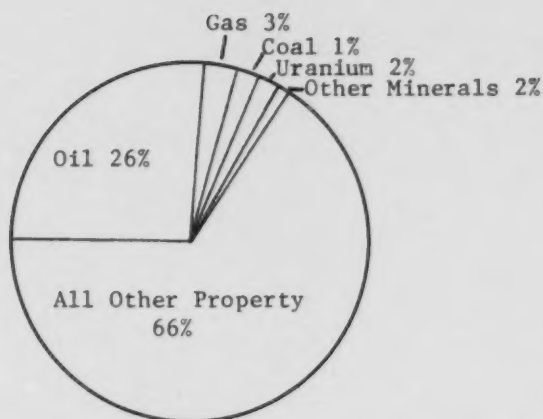
Appreciation is extended to the mineral companies of Wyoming for their assistance and cooperation in providing estimates of their production during the next five years. Also, help and information provided by Woody Renner and Jim Felton, of the Ad Valorem Tax Division of the State Department of Revenue and Taxation, proved invaluable. Special thanks are extended to Gary Glass and his staff of the Geological Survey of Wyoming for assistance in estimating future production levels. Also, much valuable data was supplied by Don Basko of the Wyoming Oil and Gas Conservation Commission.

Any questions or comments may be addressed to:

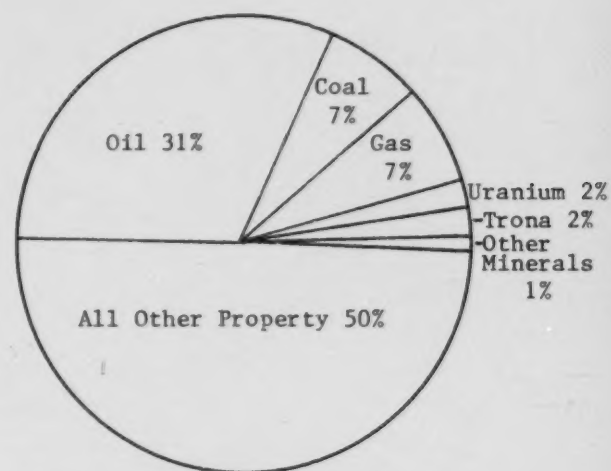
Minerals Division
Department of Economic Planning and Development
Barrett Building
Cheyenne, Wyoming 82002

*These figures are from the Oil and Gas Conservation Commission, rather than Ad Valorem Tax, due to the change in reporting requirements adopted by the 1980 Legislature.

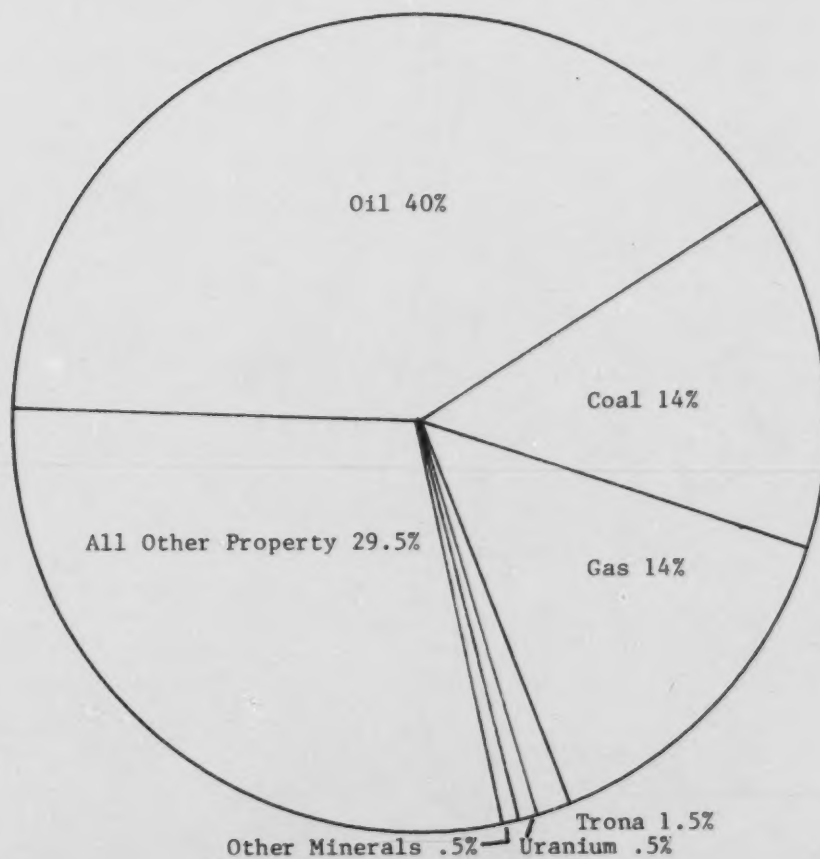
TOTAL STATE ASSESSED VALUATION 1973, 1978 and 1983



1973 Total Valuation
\$1,486,086,653



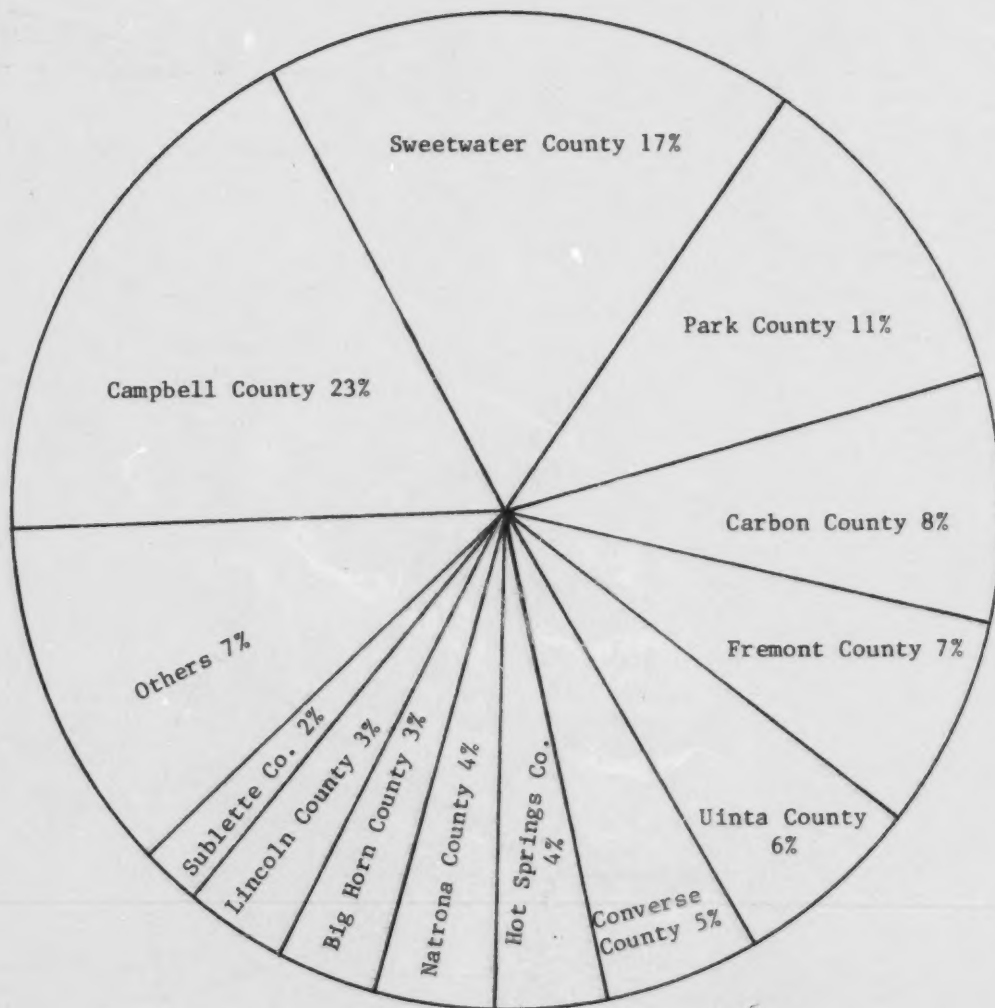
1978 Total Valuation
\$3,251,778,281



1983 Total Valuation
\$7,936,557,675

TOTAL STATE ASSESSED MINERAL VALUATION 1983

\$5,624,803,530



WYOMING MINERAL INDUSTRY

TAX TABLES

The ten tables in this section illustrate the tax situation for the Wyoming Minerals Industry since 1969. The significance of 1969 is that that was the year the severance tax on minerals was initiated.

Tables are as follows:

- I Assessed Valuation on Production, 1969 - 1983.
- II Ad Valorem Tax paid on Production, 1969 - 1983.
- III Assessed Valuation Per Unit of Production, 1969 - 1983.
- IV Severance Tax Collections, 1969 - 1983.
- V Severance Tax Rates, 1969 - 1983.
- VI Severance Tax Distribution, 1982.
- VII Sales and Use Tax - Fiscal Year.
- VIII Government Royalty.
- IX Summary Table.
- X Mineral Income to the State, 1971 - 1983.

TABLE I
ASSESSED VALUATION ON PRODUCTION¹
(In dollars)

	1969	1970	1971	1972	1973	1974	1975	1976
Oil	342,095,561	393,521,962	408,316,110	410,960,436	386,433,220	484,677,222	833,099,266	894,047,178
Oil (Stripper)								
Gas	32,568,891	35,896,344	38,876,833	42,917,421	45,799,719	56,303,866	65,041,856	88,861,898
Coal	5,158,890	6,604,717	12,823,567	15,230,522	20,220,230	36,525,380	70,658,473	124,656,316
Uranium	11,973,833	12,887,471	17,793,920	18,584,904	26,736,686	24,469,735	19,519,275	20,829,685
Trona	7,206,779	10,792,192	14,830,637	14,616,185	17,127,262	22,793,340	33,537,931	44,278,752
Others	8,435,480	10,435,621	128,127,781	13,341,962	15,654,176	18,231,793	23,009,044	26,252,467
Totals	407,439,434	470,138,307	505,453,848	515,651,430	511,969,293	643,001,336	1,044,865,845	1,198,926,296

	1977	1978	1979	1980	1981	1982	1983
Oil	871,638,686	933,988,779	1,030,279,506	1,156,955,262	2,319,694,558	3,399,464,789	3,182,388,462
Oil (Stripper)	54,635,836	62,166,335	69,151,578	128,228,914	N/A	206,223,009	
Gas	132,925,715	223,675,393	264,389,250	456,131,295	671,087,378	978,407,639	1,132,051,442
Coal	182,641,777	299,778,223	408,906,655	572,648,542	773,633,734	989,695,692	1,113,645,140
Uranium	41,830,148	66,240,921	73,196,538	69,290,431	80,981,002	77,239,481	45,555,994
Trona	61,604,249	78,660,136	79,793,896	108,890,862	138,925,498	147,417,617	121,583,686
Others	29,872,572	33,404,356	35,025,749	41,893,010	41,828,458	49,758,099	29,578,806
Totals	1,375,149,102	1,697,914,143	1,960,744,172	2,543,038,316	4,026,165,628	5,852,764,024	5,624,803,530

¹ Assessed Valuation is on the previous year's production.

Source: Department of Revenue and Taxation,
Ad Valorem Tax Division.

Prepared by: The Department of Economic Planning and
Development, Mineral Development Division
December 1983

TABLE II
AD VALOREM TAX PAID ON PRODUCTION¹
(In dollars)

	1969	1970	1971	1972	1973	1974	1975	1976
Oil	18,630,403	21,250,757	22,497,626	22,745,100	21,647,269	27,428,035	44,062,703	52,011,268
Oil (Stripper)								
Gas	1,818,047	2,026,025	2,231,793	2,479,267	2,735,809	3,361,474	3,791,780	5,416,016
Coal	278,203	347,724	781,847	933,916	1,125,772	2,018,242	3,991,473	7,321,256
Uranium	745,436	800,216	1,113,915	1,139,758	1,594,162	1,441,087	1,181,988	1,268,260
Trona	439,181	627,674	925,135	913,663	1,186,837	1,580,954	2,390,070	3,089,771
Others	496,108	615,480	772,514	832,974	975,059	1,122,396	1,363,208	1,648,239
Totals	22,407,378	25,667,876	28,272,830	29,044,678	29,264,908	36,952,188	56,781,222	70,754,810

	1977	1978	1979	1980	1981	1982	1983
Oil	53,242,493	57,655,255	65,640,994	73,114,675	141,067,719	208,758,682	214,319,087
Oil (Stripper)	(3,337,395)	3,837,536	4,405,838	8,103,525	N/A	12,664,006	
Gas	8,363,221	14,157,450	16,951,670	29,195,909	42,834,989	62,548,833	75,104,760
Coal	11,216,632	18,962,219	25,551,858	37,216,429	48,882,281	65,921,399	76,171,728
Uranium	2,661,655	4,322,847	4,948,183	4,599,360	5,407,377	4,881,942	2,931,559
Trona	4,239,604	5,898,724	5,698,082	7,783,519	10,095,716	10,416,529	8,721,198
Others	1,919,772	2,145,881	3,212,339	2,712,807	2,885,474	3,154,581	1,991,685
Totals	84,981,772	106,979,912	126,408,964	162,726,224	251,173,456	368,345,972	379,240,017

¹ Taxes are paid on previous year's production.
Sources: Department of Revenue and Taxation,
Ad Valorem Tax Division.
Petroleum Association of Wyoming.

Prepared by: The Department of Economic Planning and
Development, Mineral Development Division
December 1983

TABLE III

ASSESSED VALUATION PER UNIT OF PRODUCTION
(In dollars)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Oil (bbl.)	2.63	2.80	2.88	3.10	3.09	3.82	6.71	7.41	7.51	7.81	8.74
Oil (stripper) ¹									(11.85)	(13.01)	(13.89)
Gas (mcf)	.15	.15	.15	.15	.16	.20	.24	.36	.51	.82	.97
Coal (ton)	1.40	1.50	1.82	1.97	2.01	2.56	3.54	5.39	6.03	6.73	7.24
Uranium (ton)	6.05	7.90	8.72	9.09	11.18	9.46	8.53	7.61	12.66	16.62	13.27
Trona (ton)	2.28	2.91	3.69	3.48	3.50	3.78	4.74	6.00	7.00	7.70	8.00

	1980	1981	1982	1983	14 Year Increase \$	14 Year Increase %	Factor of Increase Since 1969
Oil (bbl.)	10.50	20.32	32.26	29.45	26.82	-	-
Oil (stripper) ¹	(23.53)	N/A	(34.94)	(31.60)	-	1019	11.19
Gas (mcf)	1.37	1.92	2.77	3.22	3.07	2046	21.46
Coal (ton)	8.32	8.55	10.06	10.71	9.31	665	7.65
Uranium (ton)	12.57	15.13	16.89	21.69	15.64	258	3.58
Trona (ton)	9.25	11.43	12.51	12.07	9.79	429	5.29

¹ Stripper wells (10 bbls. per day or less) pay 4%.

Sources: Department of Revenue and Taxation,
Ad Valorem Tax Division.
Petroleum Association of Wyoming.

Prepared by: The Department of Economic Planning and
Development, Mineral Development Division

December 1983

TABLE IV
SEVERANCE TAX COLLECTIONS^{1,2}
(In dollars)

	1969	1970	1971	1972	1973	1974	1975	1976
Oil	3,436,531	3,934,661	4,087,588	4,129,909	3,865,315	14,427,959	32,689,133	34,781,276
Gas	323,794	357,047	388,585	412,267	457,930	1,504,043	2,604,405	3,554,476
Coal	51,592	63,778	128,199	159,272	202,202	1,095,230	2,862,339	4,986,253
Uranium	119,739	128,838	178,136	186,021	267,347	244,697	390,395	416,594
Trona	72,068	107,922	148,306	146,162	171,273	683,800	1,341,517	1,771,150
Others	84,355	104,362	117,948	137,782	157,241	182,852	463,772	527,052
Totals	4,088,079	4,696,608	5,048,762	5,171,413	5,121,308	18,138,581	40,315,561	46,034,800

	1977	1978	1979	1980	1981	1982	1983*
Oil	35,958,264	38,602,878	42,594,321	48,842,788	212,216,807	186,209,348	87,487,875
Gas	5,317,029	8,947,016	10,575,570	18,245,252	58,704,458	71,149,850	42,372,670
Coal	17,716,252	30,277,601	42,935,199	60,128,097	103,918,068	116,873,160	62,346,315
Uranium	2,300,658	3,643,251	4,025,810	3,810,974	4,248,171	2,426,365	3,034,173
Trona	3,388,234	4,326,307	4,388,664	5,988,997	8,107,969	6,780,896	1,705,409
Others	597,454	668,087	700,515	837,859	995,164	740,484	243,310
Totals	65,277,891	86,465,140	105,219,989	137,853,967	388,190,617	384,180,103	197,189,751

¹Severance Tax is paid on previous year's production.

²Severance Tax will be paid quarterly starting in 1981.

*First two quarters of 1983.

Source: Department of Revenue and Taxation,
Ad Valorem Tax Division.
Petroleum Association of Wyoming.

Prepared by: The Department of Economic Planning and
Development, Mineral Development Division
December 1983

TABLE V
SEVERANCE TAX RATES

	1969	1970	1971	1972	1973	1974	1975	1976
Oil	10 Mills (1%)	1.0%	1.0%	1.0%	1.0%	3.0%	4.0%	4.0%
Gas	10 Mills (1%)	1.0%	1.0%	1.0%	1.0%	3.0%	4.0%	4.0%
Coal	10 Mills (1%)	1.0%	1.0%	1.0%	1.0%	3.0%	4.4%	4.8%
Uranium	10 Mills (1%)	1.0%	1.0%	1.0%	1.0%	2.0%	2.0%	2.0%
Trona	10 Mills (1%)	1.0%	1.0%	1.0%	1.0%	3.0%	4.0%	4.0%
Others	10 Mills (1%)	1.0%	1.0%	1.0%	1.0%	2.0%	2.0%	2.0%

	1977	1978	1979	1980	1981	1982	1983
Oil	4.0%	4.0%	4.0%	4.0%	6.0%	6.0%	6.0%
Gas	4.0%	4.0%	4.0%	4.0%	6.0%	6.0%	6.0%
Coal	9.7%	10.1%	10.5%	10.5%	10.5%	10.5%	10.5%
Uranium	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
Trona	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%	5.5%
Others	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Prepared by: The Department of Economic Planning and
Development, Mineral Development Division

December 1983

TABLE VI
SEVERANCE TAX DISTRIBUTION (1983)

Proceeds To	Coal	Trona	Uranium	Oil*	Gas	Other
Permanent Wyoming Mineral Trust Fund	2.5%	2.0%	2.0%	2.167%	2.167%	2.0%
General Fund	2.0%	2.0%	2.0%	2.000%	2.000%	
Wyoming Water Development Account	1.5%			.167%	.167%	
Highway Fund	1.0%			.666%	.666%	
Capital Facilities Revenue Account	1.5%	1.5%			.250%	
Coal Impact Tax	2.0%				.750%	
Counties, Cities and Towns					6.000%	
Total	10.5%	5.5%	5.5%	6.000%	6.000%	2.0%

*Stripper Oil is 4.0%.

Prepared by: The Department of Economic Planning and Development,
Mineral Development Division

December 1983

TABLE VII

SALES AND USE TAX (FISCAL YEAR)
(In dollars)

	1971	1972	1973	1974	1975	1976	1977
Oil and							
Sales	866,859	857,224	1,115,123	1,724,261	3,224,274	4,082,391	4,837,746
Natural Gas							
Use	75,794	102,405	147,793	228,076	428,594	380,383	494,689
Coal							
Sales	6,162	8,060	8,830	14,006	84,439	78,312	238,357
Use	47,956	181,463	216,691	135,461	680,171	661,775	1,441,992
Metal Mining							
Sales	8,522	8,837	10,961	9,763	83,042	149,608	187,762
Use	142,472	107,287	89,826	94,839	358,945	670,004	868,173
Other Mining							
Sales	98,180	86,481	115,294	270,561	405,655	429,123	459,592
Use	187,333	312,709	462,320	865,722	895,296	727,911	1,425,173
Totals							
Sales	979,723	960,602	1,250,208	2,018,591	3,797,410	4,739,434	5,723,457
Use	453,555	703,864	916,630	1,324,098	2,363,006	2,440,073	4,230,027
Both	1,433,278	1,664,466	2,166,838	3,342,689	6,160,416	7,179,507	9,953,484

	1978	1979	1980	1981	1982	1983
Oil and						
Sales	6,803,898	8,581,968	12,348,619	16,079,610	22,035,697	15,218,668
Natural Gas						
Use	663,220	1,270,079	1,659,281	2,037,239	7,313,596	3,523,801
Coal						
Sales	318,052	463,133	519,766	841,075	734,329	559,876
Use	1,451,495	2,327,323	1,177,761	930,267	2,747,266	3,351,329
Metal Mining						
Sales	191,480	573,470	191,266	152,566	244,464	262,155
Use	1,171,804	1,218,530	957,484	566,053	325,782	179,114
Other Mining						
Sales	734,697	1,231,801	1,561,663	2,135,082	2,801,968	1,816,543
Use	1,330,654	1,415,269	1,705,501	2,035,418	1,829,396	1,940,381
Totals						
Sales	8,075,098	10,850,372	14,621,314	19,208,333	25,816,458	17,857,242
Use	4,850,379	5,231,201	5,500,027	5,568,977	12,216,040	8,994,625
Both	12,925,477	16,081,573	20,121,341	24,777,310	38,032,498	26,851,867

Prepared by: The Department of Economic Planning and
Development, Mineral Development Division
December 1983

Source: Department of Revenue and Taxation.

TABLE VIII
GOVERNMENT ROYALTY (MINERAL ROYALTY RETURNS TO STATE)
(In dollars)

	1970	1971	1972	1973	1974	1975	1976
	18,624,702	21,085,849	19,855,029	19,412,665	33,392,197	34,450,233	49,433,822
	1977	1978	1979	1980	1981	1982	1983
	58,971,484	69,763,079	76,523,544	95,100,847	115,062,289	119,955,519	152,195,146

Prior to 7/1/76 the State received 37 1/2% of the Federal Mineral Royalties, after 7/1/76 the State received 50%.

These funds are distributed by W. S. Section 9-4-601 as follows:

Foundation Program	Highway Commission	University of Wyoming	Highway Commission for Counties	Incorporated Cities & Towns	Capitol Construction Cities, Towns, Special Districts
37 1/2%	26 1/4%	6 3/4%	2 1/4%	7 1/2%	9 3/4%

Capitol Construction
Schools, Community Colleges
and State

10%

Source: State Treasurer.

Prepared by: The Department of Economic Planning and Development,
Mineral Development Division

December 1983

TABLE IX

	ASSESSED VALUATION PER UNIT				SEVERANCE TAX			TAX AS A			
			Percent of Increase	Factor of Increase			Percent of Increase	AVERAGE TAX LEVY (MILLS)		PERCENTAGE OF VALUATION- MILL LEVY PLUS SEVERANCE	
	1969	1983			1969	1983		1969	1983		
OIL	\$2.63	\$29.45	1019%	11.19	1.0%	6.0%	500%	54.4	67.345	6.44%	12.73%
Gas	.15	3.22	2046	21.46	1.0	6.0	500	55.8	66.344	6.58	12.63
Coal	1.40	10.71	665	7.65	1.0	10.5	950	53.9	68.399	6.39	17.34
Uranium	6.05	21.69	258	3.58	1.0	5.5	450	62.2	64.351	7.22	11.93
Trona	2.28	12.07	429	5.29	1.0	5.5	450	60.9	71.730	7.09	12.67

	AVERAGE TAX PAID PER UNIT 1969	1983	INCREASE PER UNIT THROUGH 1982	PERCENTAGE OF INCREASE PER UNIT THROUGH 1982	FACTOR OF INCREASE PER UNIT THROUGH 1982
Oil	\$0.169	\$1.273	\$1.104	653%	7.53
Gas	0.009	1.263	1.254	1303	14.03
Coal	0.069	1.734	1.665	1848	19.48
Uranium	0.437	1.193	0.756	173	2.73
Trona	0.183	1.267	1.084	592	6.92

Prepared by: The Department of Economic Planning and Development,
Mineral Development Division
December 1983

TABLE X

MINERAL INCOME TO THE STATE OF WYOMING 1971 - 1983²
(In dollars per calendar year)

Source	1971	1972	1973	1974	1975	1976	1977
Ad Valorem	28,272,830	29,044,678	29,264,908	36,952,188	56,781,222	70,754,810	84,981,772
Severance	5,048,761	5,171,411	5,121,307	18,138,581	40,315,561	46,034,800	65,277,891
Sales and Use ¹	1,433,276	1,664,466	2,166,838	3,342,689	6,160,415	7,179,457	9,953,382
U.S. Rent and Royalty Returns*	21,085,848	19,855,028	19,412,664	33,392,196	34,450,233	49,433,821	58,971,484
State Rent	2,533,127	2,548,206	2,690,933	3,030,133	3,648,785	3,372,336	3,532,586
State Royalties	5,157,428	5,008,511	4,613,961	9,429,243	10,413,284	12,160,309	15,254,011
General Fund Income (filing fees, etc.)	345,808	828,585	893,839	1,294,785	2,143,956	2,828,505	4,032,739
Total	63,877,078	64,120,885	64,164,450	105,579,815	153,913,456	191,764,035	240,903,865

Source	1978	1979	1980	1981	1982	1983
Ad Valorem	106,979,912	126,408,964	162,726,224	251,173,456	368,345,972	379,240,017
Severance	86,465,140	105,219,989	137,853,969	189,859,851	384,180,103	197,189,751 ²
Sales and Use ¹	12,925,477	18,987,778	20,121,341	24,777,310	38,032,499	26,851,867
U.S. Rent and Royalty Returns*	69,763,078	76,523,544	95,100,847	115,062,289	119,955,519	152,195,146
State Rent	3,946,697	3,504,505	4,716,653	5,487,607	6,358,149	6,547,641
State Royalties	15,560,977	16,248,479	30,814,994	51,011,313	62,113,790	64,615,059
General Fund Income (filing fees, etc.)	6,433,216	6,408,160	7,608,030	9,143,841	15,350,121	13,240,427
Total	302,074,497	353,301,419	458,942,058	646,515,667	994,336,153	839,879,908 ²

*Prior to 7/1/76 the State received 37.5% of the Federal Mineral Royalties; after 7/1/76 the State received 50%.

Prepared by: The Geological Survey of Wyoming.

Sources: The Department of Economic Planning and Development, Department of Revenue and Taxation, State Land Commission, and the State Treasurer. December 1983

¹This only includes Metal Mining, Coal Mining, Miscellaneous Mining and Oil and Gas.

²Severance Tax Collections are for the first two quarters of 1983 only.

WYOMING MINERAL COMMODITIES REVIEW

1983

BENTONITE

Bentonite is a clay mineral which is the result of the alteration of volcanic ash. Wyoming bentonite originated from volcanic ash ejected in western Wyoming and Idaho during the late Cretaceous period about 120,000,000 years ago. Prevailing westerly winds blew the ash eastward and deposited it in the areas now occupied by bentonite deposits. Wyoming bentonite occurs in the Big Horn Basin, the southern Powder River Basin, and along the western edge of the Black Hills in the northeastern corner of the state.

Bentonite is a clay mineral composed of microscopic platelets consisting of layers of aluminum hydroxide held between layers of silicate atoms. These platelets are stacked one on top of the other. Water can penetrate between layers of platelets, causing the entire structure to swell. Wyoming bentonite has sodium atoms interspersed between these layers of platelets at intervals. Other types of bentonite have calcium between the platelet layers. Sodium bentonite has greatly increased swelling characteristics. Wyoming sodium bentonite, when wet, increases as much as fifteen times its original volume.

Bentonite was used by area Indians as a bleaching clay and washing agent before the white man ventured into what is now Wyoming. Bentonite bogs or "soap holes" caused the loss of some cattle to the pioneers, but it was utilized as an emergency substitute for axle grease, as a curative pack for inflamed horses' hoofs and as waterproofing for the roofs of dwellings.

Bentonite was originally named taylorite for William Taylor of Rock Creek, who first made commercial shipments of the clay in 1888. Dr. S. H. "Sam" Knight, State Geologist of Wyoming, renamed the clay bentonite when he learned that taylorite had previously been used in England as the name for another mineral. The term bentonite comes from the Fort Benton shale member of the Mowry formation, where the mineral occurs.

The first sales of Wyoming bentonite were to eastern plants for use in the manufacture of cosmetics. Production remained at a low level until the 1920's, when bentonite's usefulness as a binding agent in foundry sand, and an additive to oil well drilling mud were first discovered.

The U. S. Bureau of Mines economic mineral publications first separated bentonite from "other clays" in 1931. The Wyoming Ad Valorem Tax Division has maintained separate bentonite production statistics since 1927.

The first bentonite mill in Wyoming was constructed at Cheyenne in 1920. The bentonite used in this plant was mined near Medicine Bow. The first mills near the Black Hills, in the northeastern part of the state, were constructed at Newcastle, Osage, and Upton in 1926. Production began in the northern Black Hills near Belle Fourche in the late 1930's. Later, other high grade deposits were discovered in the Big Horn Basin and the Kaycee area of the Powder River Basin.

There are eight companies presently involved in the Wyoming bentonite industry:

1. Kaycee Bentonite and Benton Clay in the Powder River Basin.
2. The Baroid Division of N. L. Industries, Federal Bentonite, International Minerals and Chemical, and American Colloid near the Black Hills.
3. Dresser Minerals, the Baroid Division of N. L. Industries, Wyo-Ben, American Colloid, and Kaycee Bentonite in the Big Horn Basin.

Wyoming Bentonite production has risen from 1,141 tons in 1927 to 4,805,005 tons in 1981. The accompanying table shows historical Wyoming bentonite production.

Estimates of remaining Wyoming bentonite reserves vary widely. A report of the American Institute of Mining Engineers gives a figure of 1,149,000,000 tons of in-place reserves, while the 1980 edition of the U. S. Bureau of Mines Mineral Facts and Problems lists reserves of 200,000,000 tons.

Bentonite deposits either crop out at the surface or are buried shallowly, so mining operations consist of removing any overburden present and loading the bentonite into trucks for transport to a mill. Due to shallow burial and the loose unconsolidated nature of the surrounding sediments, no underground mining of bentonite has been attempted. When the bentonite arrives at the mill, it is segregated into piles according to physical characteristics. Material from these piles are blended to obtain a product with the desired characteristics.

In the mill, the bentonite is first broken into small chunks, screened, and conveyed through a dryer. Temperature of the dryer is critical since temperatures that are too high can destroy the desired properties of the bentonite. Natural gas has been the fuel used in the dryers, but coal and some air drying are now utilized in several operations.

Drying removes about 25% of the moisture in the bentonite. After drying, the clay is pulverized to a variety of size ranges. After sizing, bentonite is either packed in 50, 75, or 100 pound bags or bulk shipped in covered railroad cars.

Currently the single largest market for bentonite is the oil and gas industry, which uses bentonite as a drilling mud additive. 50% of Wyoming bentonite is used in drilling muds. Bentonite's colloidal properties allow heavy well cuttings to be suspended, helps lubricate drilling equipment, cakes the sides of the drill hole to prevent caving, and prevents seeping of ground water into the hole and drilling fluids out of it into surrounding rocks.

The foundry industry consumes 20% of the state's bentonite. Bentonite is used as a molding sand binder. The clay's superior binding properties allow the sand to be formed into shapes that will not fracture or disintegrate during molding operations.

Iron ore pelletizing uses 20% of the bentonite produced. In this application, fine particles of iron ore are bound into pellets for use as blast furnace feed.

The remaining 10% is used in a myriad of applications, a sampling of which are: animal feed, ceramics, water softening, cement manufacture, laxatives, crayons, paint, insecticide, reservoir liner, and medicines.

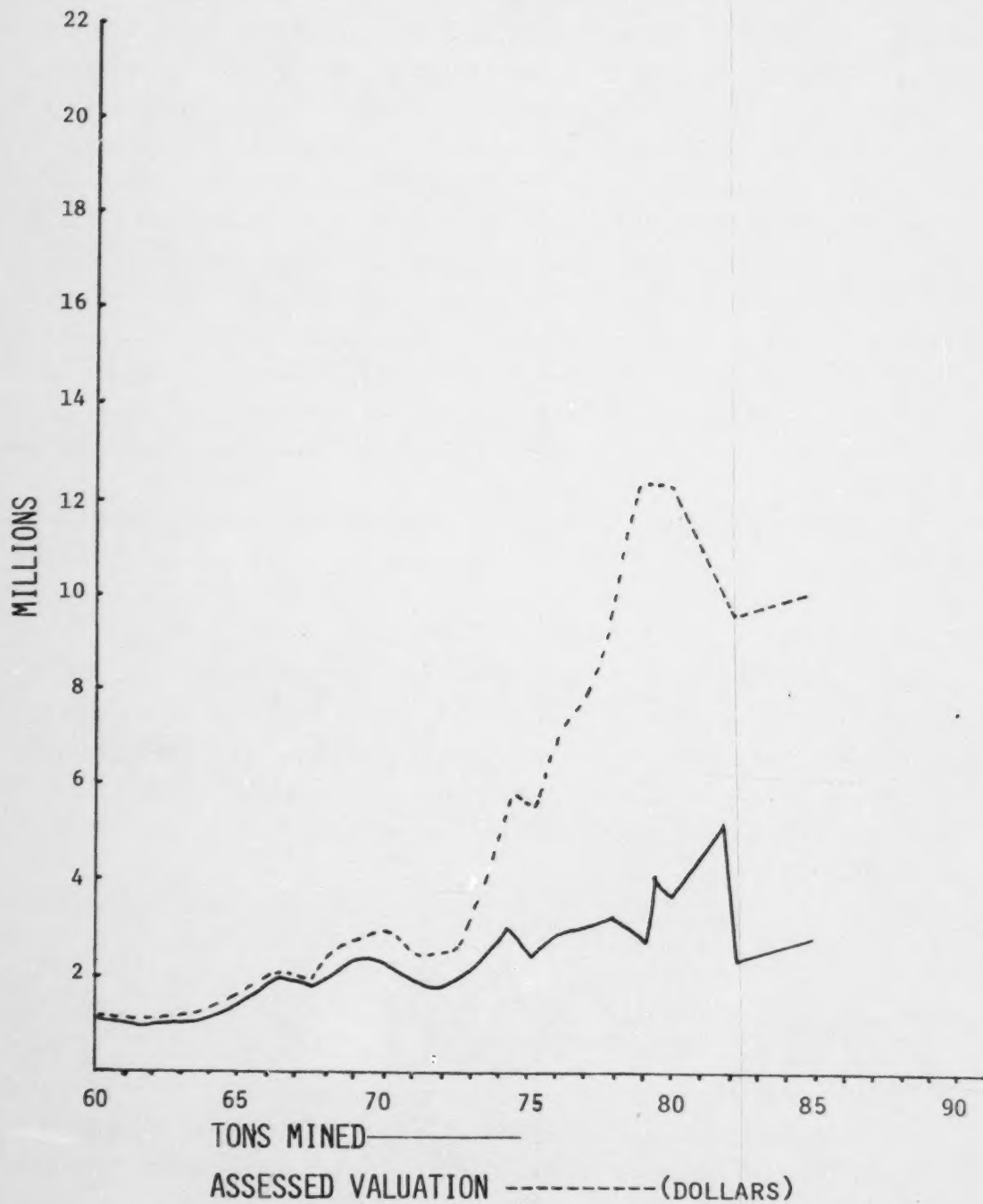
The Wyoming bentonite industry is facing a decline in markets due to a reduction in oil well drilling, the slump of the steel and automobile industries, and very sluggish construction activity. Long range prospects are favorable, but bentonite production will very likely be reduced for the next several years.

HISTORICAL BENTONITE PRODUCTION

<u>Year</u>	<u>Net Tons</u>	<u>Year</u>	<u>Net Tons</u>
1921 - 1926	Lumped with "other clay"	1954	928,837
1927	1,141	1955	886,092
1928	11,097	1956	1,215,943
1929	23,369	1957	1,073,119
1930	25,900	1958	648,404
1931	14,307	1959	1,146,001
1932	11,906	1960	1,096,850
1933	21,652	1961	1,008,756
1934	27,177	1962	1,165,538
1935	40,154	1963	1,398,106
1936	36,926	1964	1,578,528
1937	61,686	1965	1,923,319
1938	65,289	1966	2,081,352
1939	77,481	1967	1,801,966
1940	70,265	1968	2,118,871
1941	182,719	1969	2,373,253
1942	201,424	1970	2,228,978
1943	273,095	1971	1,813,066
1944	347,048	1972	2,062,384
1945	535,675	1973	2,614,779
1946	324,886	1974	3,422,675
1947	617,940	1975	2,760,871
1948	713,802	1976	3,278,765
1949	607,767	1977	3,315,783
1950	543,274	1978	3,626,652
1951	926,850	1979	4,479,242
1952	926,850	1980	3,584,713
1953	949,566	1981	4,805,005
		1982	2,345,914
		Cumulative Total	69,423,008

Source: Wyoming Department of Revenue and Taxation (net taxable tons)

BENTONITE PRODUCTION AND VALUATION
1960 - 1985



COAL

Coal results from the burial and compression of large amounts of vegetation. Increasing depth of burial results in the addition of heat which alters the original vegetation physically and chemically.

Wyoming's coal deposits accumulated during two geologic periods, the later Cretaceous and Early Tertiary, between 75 and 45 million years ago.

During late Cretaceous time, Wyoming was a low land area, periodically covered by a shallow sea which advanced and retreated from east to west. When the sea retreated, low lying coastal swamps developed where extensive vegetation grew, died and accumulated on the swamp bottoms. When the sea readvanced, the plant material was buried by silts and clays. This cycle was repeated many times, with the earlier deposited material being buried deeper and deeper and ultimately being converted into coal by heat and pressure. Wyoming's Cretaceous coals are commonly thin, seldom exceeding 10 feet in thickness.

Conditions were different in early Tertiary Time, when the other sequence of Wyoming coals developed. The sea had disappeared, and various ranges of the Rocky Mountains had risen. A number of basins developed between these ranges, and large amounts of vegetation accumulated in these basins. These Tertiary coals are typically much thicker than the earlier deposits, with beds of 30 to 100 feet common, and a maximum known thickness of over 200 feet.

Coals are ranked according to composition and heating value. Peat, which consists of lightly compressed dried vegetation, is not considered a coal, although it is used as a fuel in Ireland and northern England. The ranks of coal are as follows:

<u>Name</u>	<u>Amount of Carbon</u>	<u>BTU Content</u>	<u>Volatiles</u>	<u>Moisture</u>
Anthracite	86 - 98%	16,000 - 20,000	5%	0%
Bituminous	55 - 85%	11,000 - 16,000	25%	20%
Subbituminous	30 - 55%	8,300 - 11,000	40%	30%
Lignite	10 - 30%	4,000 - 8,300	50%	40%

These ranks are divided into smaller categories in detailed classifications. Wyoming's coal is subbituminous in grade. It contains more moisture, more ash, and less sulphur than many equivalent coals from the east and mid-west.

The first written account of coal in Wyoming was made in 1843 by Captain John C. Fremont, "The Pathfinder." He referred to the appearance of coal in what was probably Cumberland Gap, near Kemmerer.

Captain John R. Stansbury, U. S. Army Corp of Engineers, reported seeing large outcrops of coal near Rock Springs and at Point of Rocks, twenty-five miles east of Rock Springs, in 1852.

The first use of Wyoming coal was made by the Army to heat winter quarters and in stage line forges in the mid-1800's.

The Union Pacific Railroad began prospecting for coal along its line in Wyoming in 1867, and the first coal mined by the railroad was 650 tons taken at the now abandoned Town of Carbon in 1868.

In 1908, forty years after the first production, coal mining was the leading industry in Wyoming, with a production of over six million tons, one-third of it from the Rock Springs area.

The Kemmerer Coal Company opened mines near Kemmerer about the turn of the century, and Kemmerer Coal is still operating at the present time, the longest continuous operation in the state.

Production increased up to 1947, when eight million tons were produced in the state, mostly from mines in the Hanna, Rock Springs, and Sheridan area.

It was at this point that the railroads began the change from steam to diesel locomotives, and as demand for railroad coal decreased, Wyoming production followed it downward. The bottom was reached in 1959 when the state produced less than two million tons.

Beginning in the mid-1960's, interest in Wyoming coal, as a fuel for thermal electric generation plants, began to increase. This interest was sparked primarily by two factors, physical properties of the coal, and its cost. The physical property of Wyoming coal, which made it attractive to power plant operators, was its low sulphur content, which ranges between 0.5 and 1.5 percent sulphur. This contrasts with eastern coals which range from 5 to 9 percent sulphur. The ability to burn Wyoming coal, without installation of expensive exhaust gas scrubbers, more than compensated for other detrimental properties, namely low heat value and high ash content.

Because virtually all Wyoming coal was strip mined, its cost of production was much less than deep mined eastern coal. In addition, large machinery and the latest technology greatly increased worker productivity, which lowered the price further.

At present, there are twenty-five active Wyoming coal mines; twenty-three surface and two underground. These mines are concentrated in only a few areas; the Hams Fork Coal Region in Lincoln County, the Rock Springs Coal Region in Sweetwater County, the Hanna Coal Field in Carbon County, the Powder River Coal Region in Converse, Campbell, and Sheridan Counties, and one mine in the Big Horn Coal Field of Hot Springs County.

The Powder River Basin accounts for 70% of Wyoming's production and boasts the biggest surface coal mines in the nation; Amax's Belle Ayre Mine and Atlantic Richfield's Black Thunder Mine. Information on individual mines is available from the State Geological Survey in Laramie or the Minerals Division of DEPAD.

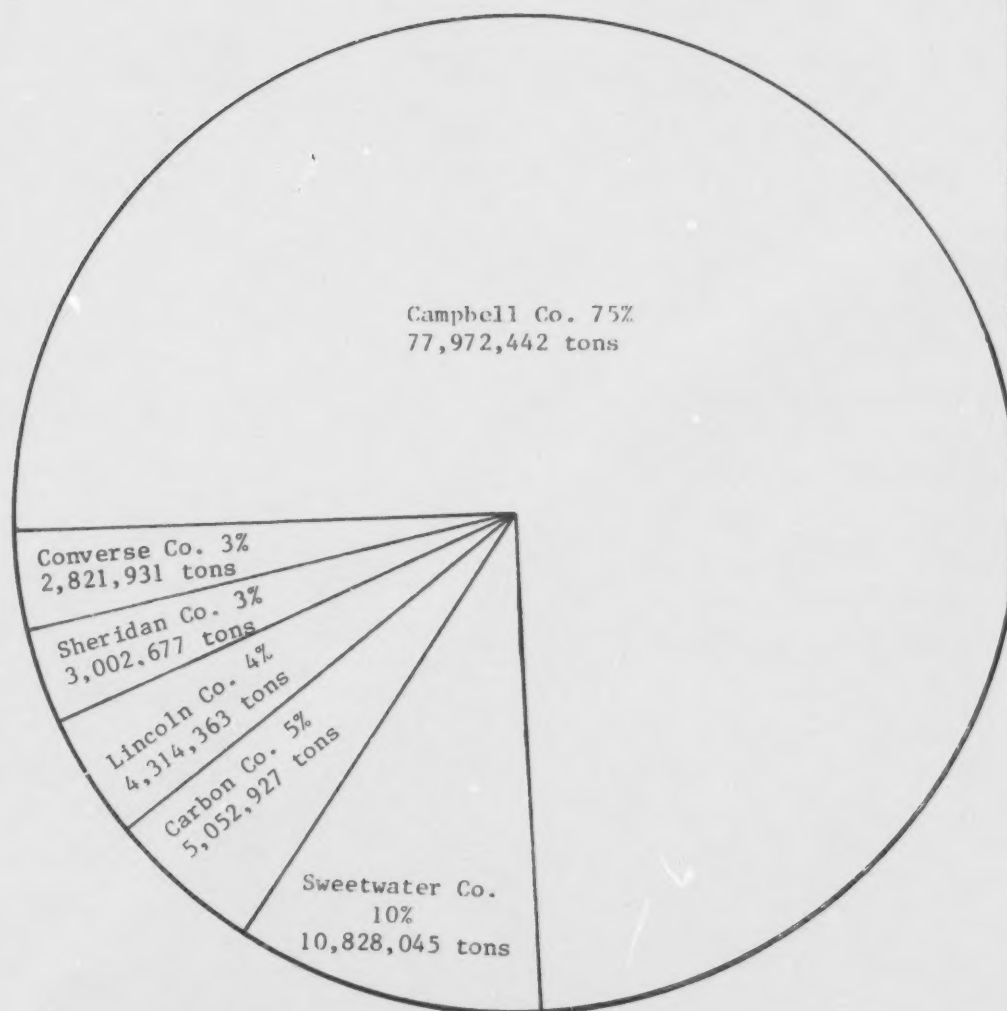
Wyoming coal production has increased over 14 fold since 1971 under the impetus of power plant demand. The history of Wyoming coal production is given on the accompanying table.

The future of the Wyoming coal industry is uncertain. Several factors mitigate against Wyoming coal:

1. With the requirement of SO_2 scrubbers on all power plant smoke stacks, regardless of the sulphur content of the coal being burned, eastern and mid-western utilities are leaning toward local, higher sulphur, higher BTU coal to fuel their boilers.
2. Freight rates have reached the point where it costs up to three times as much to transport the coal as the cost of the coal itself. Under these circumstances, local coal becomes much more attractive.
3. The virtual disappearance of the Wyoming coal conversion industry has very much reduced projected in-state coal consumption.
4. Reduced electric power demand has resulted in the cancellation of generating units or entire power plants, significantly reducing potential customers.

Given these negative developments, Wyoming's coal industry is turning its attention toward new markets. One proposed new mine will emphasize the domestic market, an area of small relative demand but one which the existing large mines are not equipped to serve. The most attractive new outlet for Wyoming coal is the export market, primarily the so-called Pacific Rim nations of Japan, China, Taiwan, and the Phillipines, along with Mexico.

1982 COAL PRODUCTION



Total State Production 1982
104,014,096 Tons

HISTORICAL COAL PRODUCTION

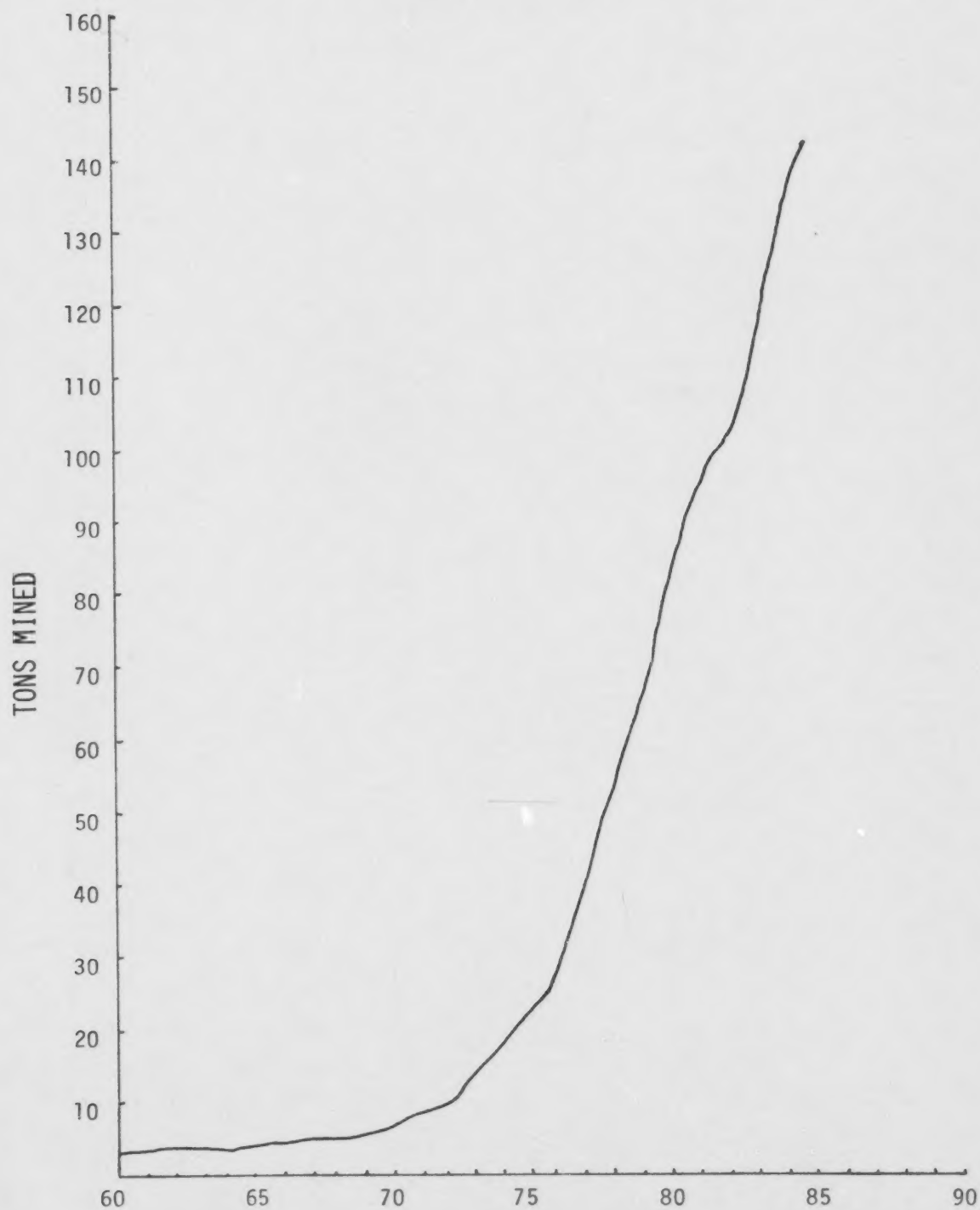
<u>Year</u>	<u>Tons</u>	<u>Year</u>	<u>Tons</u>
1865	800	1897	2,744,960
1866	2,500	1898	2,863,812
1867	5,000	1899	3,837,392
1868	6,925	1900	4,014,602
1869	58,186	1901	4,485,374
1870	105,295	1902	4,429,491
1871	147,328	1903	4,635,293
1872	221,745	1904	5,178,556
1873	259,700	1905	5,602,021
1874	219,061	1906	6,133,994
1875	300,808	1907	6,252,990
1876	334,550	1908	5,489,902
1877	342,853	1909	6,393,109
1878	233,200	1910	7,533,088
1879	400,991	1911	6,744,864
1880	527,811	1912	7,368,124
1881	628,181	1913	7,393,066
1882	707,764	1914	6,475,293
1883	779,689	1915	6,554,028
1884	902,620	1916	7,910,647
1885	807,328	1917	8,575,619
1886	835,999	1918	9,438,688
1887	1,170,318	1919	7,219,738
1888	1,512,936	1920	9,630,271
1889	1,388,947	1921	9,666,298
1890	1,870,366	1922	7,152,324
1891	2,327,841	1923	5,990,984
1892	2,503,839	1924	7,557,923
1893	2,439,311	1925	6,758,379
1894	2,417,463	1926	6,563,179
1895	2,246,911	1927	6,513,534
1896	2,229,624	1928	6,548,902

Historical Coal Production - con't.

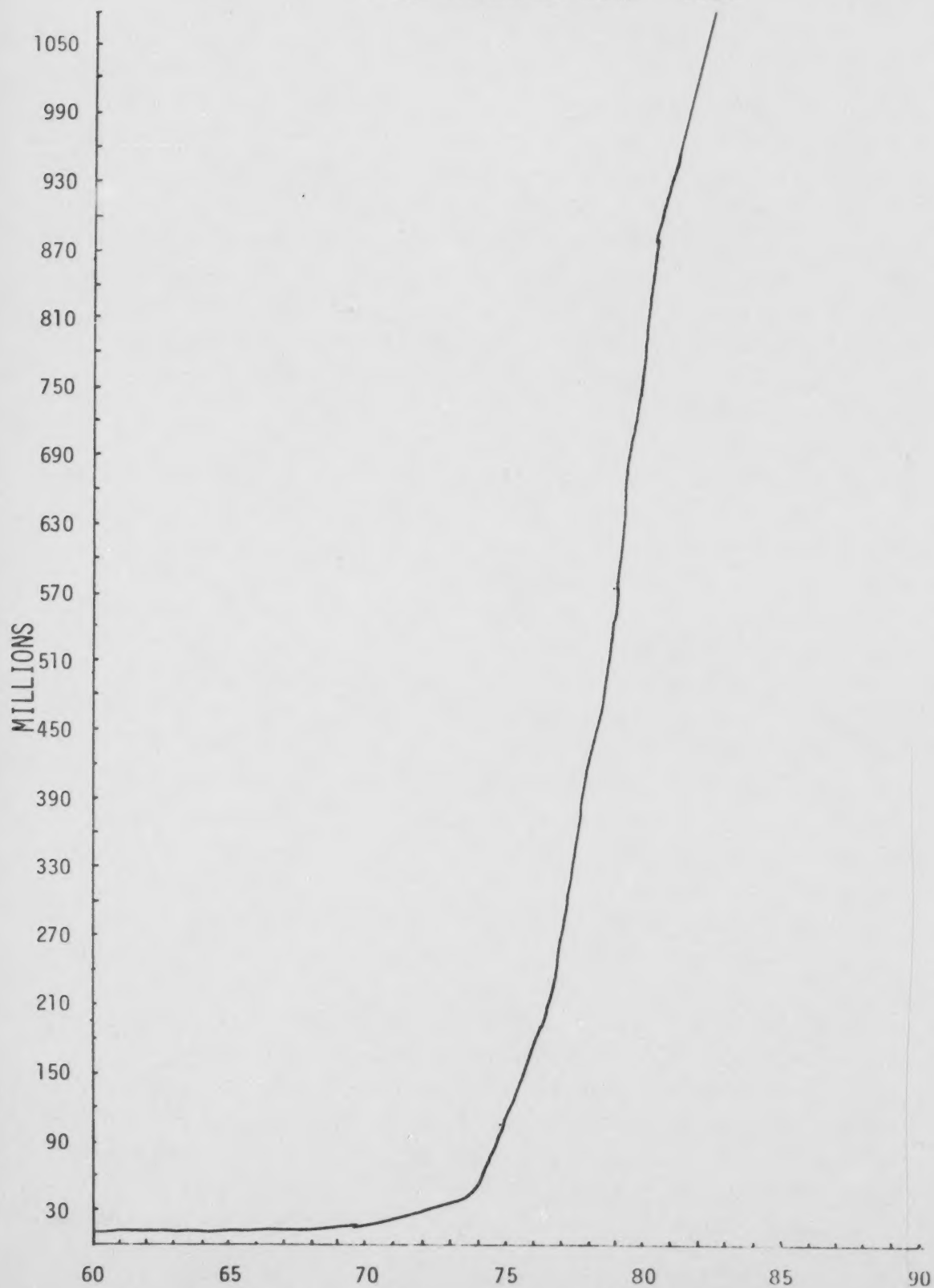
<u>Year</u>	<u>Tons</u>	<u>Year</u>	<u>Tons</u>
1929	6,666,162	1956	2,555,456
1930	6,049,282	1957	2,918,508
1931	4,992,138	1958	1,627,063
1932	4,146,814	1959	1,977,404
1933	3,979,387	1960	2,006,788
1934	4,355,791	1961	2,487,803
1935	5,184,215	1962	2,575,531
1936	5,868,972	1963	3,099,521
1937	5,903,825	1964	3,117,921
1938	5,179,074	1965	3,260,815
1939	5,387,621	1966	3,670,704
1940	5,824,926	1967	3,587,742
1941	6,664,748	1968	3,683,281
1942	8,144,972	1969	4,398,572
1943	9,202,155	1970	7,039,980
1944	9,561,545	1971	7,743,347
1945	9,879,857	1972	10,043,161
1946	7,623,968	1973	14,272,350
1947	8,038,648	1974	19,957,726
1948	6,413,602	1975	23,141,105
1949	5,981,958	1976	30,298,432
1950	6,257,416	1977	44,577,218
1951	6,310,824	1978	56,456,133
1952	6,088,338	1979	68,792,573
1953	5,247,442	1980	90,527,538
1954	2,832,636	1981	98,410,522
1955	2,921,607	1982	104,014,096
		Cumulative Total	1,012,541,548

Sources: Bureau of Mines (gross tons 1865 - 1921)
Wyoming Department of Revenue & Taxation (net tons 1921 - 1982)

COAL PRODUCTION 1960 - 1985



COAL VALUATION 1960 - 1985



IRON ORE

Iron is the backbone of our modern industrial civilization. Man has utilized iron for many centuries, first in the uncombined native form and later by smelting from different ores. Alloying with various elements has greatly improved iron's versatility and usefulness to society.

Three types of iron-bearing deposits have been mined in Wyoming. Magnetite (iron oxide) was mined in Albany County for heavy aggregate several years ago. Hematite (hydrated iron oxide) was mined for many years at the Sunrise Mine in Platte County.

Wyoming's iron ore industry began in 1870, when hematite was mined north of Rawlins for use as a paint pigment and as a fluxing agent in an early day ore smelter.

Mining commenced on a commercial basis in 1901 when hematite was shipped from an open pit operation near Sunrise in Platte County. This ore was shipped to Pueblo, Colorado, for use in the blast furnaces of the Colorado Fuel and Iron Corporation. The Sunrise Mine changed to an underground operation in the 1930's, due to changes in the ore body.

Between 1963 and 1971, U. S. Aggregate operated an iron ore mine in Albany County near Laramie. This mine produced a titaniferous magnetite which was used as a heavy aggregate in such applications as ship ballast.

The U. S. Steel Corporation started production at its open pit mine/beneficiating complex at Atlantic City in Fremont County in 1962. This mine produced taconite which, after beneficiation, yields hardened pellets of high magnetite ore which is used as a direct charge in blast furnaces. The pellets produced at Atlantic City were hauled by rail to the Geneva Steel Works near Provo, Utah.

The United States Bureau of Mines estimates that 99.6% of U. S. production is used in cement, paint, concrete, aggregate, ferro alloys, and animal feed.

Wyoming, at present, has no active iron ore industry. The United States Aggregate operation in Albany County has been closed for ten years. In July, 1980, the Colorado Fuel and Iron Corporation closed the Sunrise Mine due to the depressed state of the steel industry. U. S. Steel Corporation closed their Atlantic City operation indefinitely on October 1, 1983, for economic reasons and environmental problems at their Geneva, Utah foundry.

A history of Wyoming iron ore production is provided on the accompanying chart.

HISTORICAL IRON ORE PRODUCTION

<u>Year</u>	<u>Tons</u>	<u>Year</u>	<u>Tons</u>
1910 - 1912	Production not recorded	1943	911,907
1913	537,111	1944	799,410
1914	366,962	1945	678,676
1915	434,513	1946	693,635
1916	545,774	1947	729,467
1917	543,846	1948	772,342
1918	447,884	1949	604,302
1919	398,613	1950	550,935
1920	406,501	1951	690,983
1921	455,281	1952	543,076
1922	262,281	1953	675,778
1923	372,736	1954	492,304
1924	424,197	1955	838,691
1925	406,668	1956	725,496
1926	548,376	1957	786,548
1927	705,953	1958	558,344
1928	550,240	1959	495,428
1929	716,213	1960	474,796
1930	358,425	1961	632,291
1931	206,770	1962	1,474,701
1932	NA	1963	4,251,183
1933	323,276	1964	4,229,343
1934	130,549	1965	4,396,252
1935	379,830	1966	4,679,479
1936	565,151	1967	4,511,918
1937	792,858	1968	4,663,335
1938	309,035	1969	4,542,969
1939	658,441	1970	4,533,320
1940	931,071	1971	4,643,856
1941	1,104,154	1972	5,078,345
1942	1,071,870	1973	5,131,692

Historical Iron Ore Production - con't.

<u>Year</u>	<u>Tons</u>
1974	5,266,517
1975	5,412,162
1976	5,314,841
1977	5,254,585
1978	5,014,851
1979	4,779,934
1980	4,876,532
1981	4,667,292
1982	<u>3,276,005</u>
Cumulative Total	123,608,102

Sources: Bureau of Mines (gross tons to 1921)
Wyoming Department of Revenue and Taxation (net tons 1921 - 1982)

NATURAL GAS

Pure natural gas is composed of the simplest hydrocarbon, methane, CH_4 . Natural gas, as it comes from the well, contains a number of different substances, including: ethane, propane, butane, and pentane (hydrocarbons), also carbon dioxide, helium, hydrogen, sulfide, and nitrogen.

Natural gas processing plants remove impurities in the gas and/or compress it to increase density in order to reach the heating standards of commercial gas. The materials removed from the gas by these plants are often valuable in themselves. Propane and butane are used as fuels, while ethane, pentane, and sulphur are utilized by the chemical industry. Hydrogen and helium are important industrial gases, while nitrogen, though often simply vented to the atmosphere, is being reinjected in secondary oil recovery in the Overthrust Belt. Carbon dioxide is also utilized in secondary oil recovery, as well as serving as an important refrigerant when in the liquid or solid form.

Natural gas occurs in three ways:

1. Free natural gas unassociated with crude oil.
2. Associated gas overlying and accompanying crude oil in the same reservoir.
3. Dissolved gas, which is gas in solution with the oil under reservoir conditions.

Pipeline quality natural gas, has a heating value of about 1,000 calories per cubic foot. It burns with a bright blue flame, and the products of its combustion are carbon dioxide and water vapor. The high BTU output, plus the benign combustion products, make natural gas an excellent domestic fuel.

Wyoming has produced some natural gas since 1903, with early production coming from the Wind River and Big Horn Basins. Before 1918, Wyoming's natural gas production was included with Utah and Colorado, not allowing an individual state breakdown.

Wyoming natural gas production has increased steadily since 1918. Currently the Green River Basin leads the state's geologic provinces in natural gas production, followed by the Wind River and Powder River Basins. Production from the Overthrust Belt, in the southwestern part of the state, is reaching significant proportion and will continue to increase.

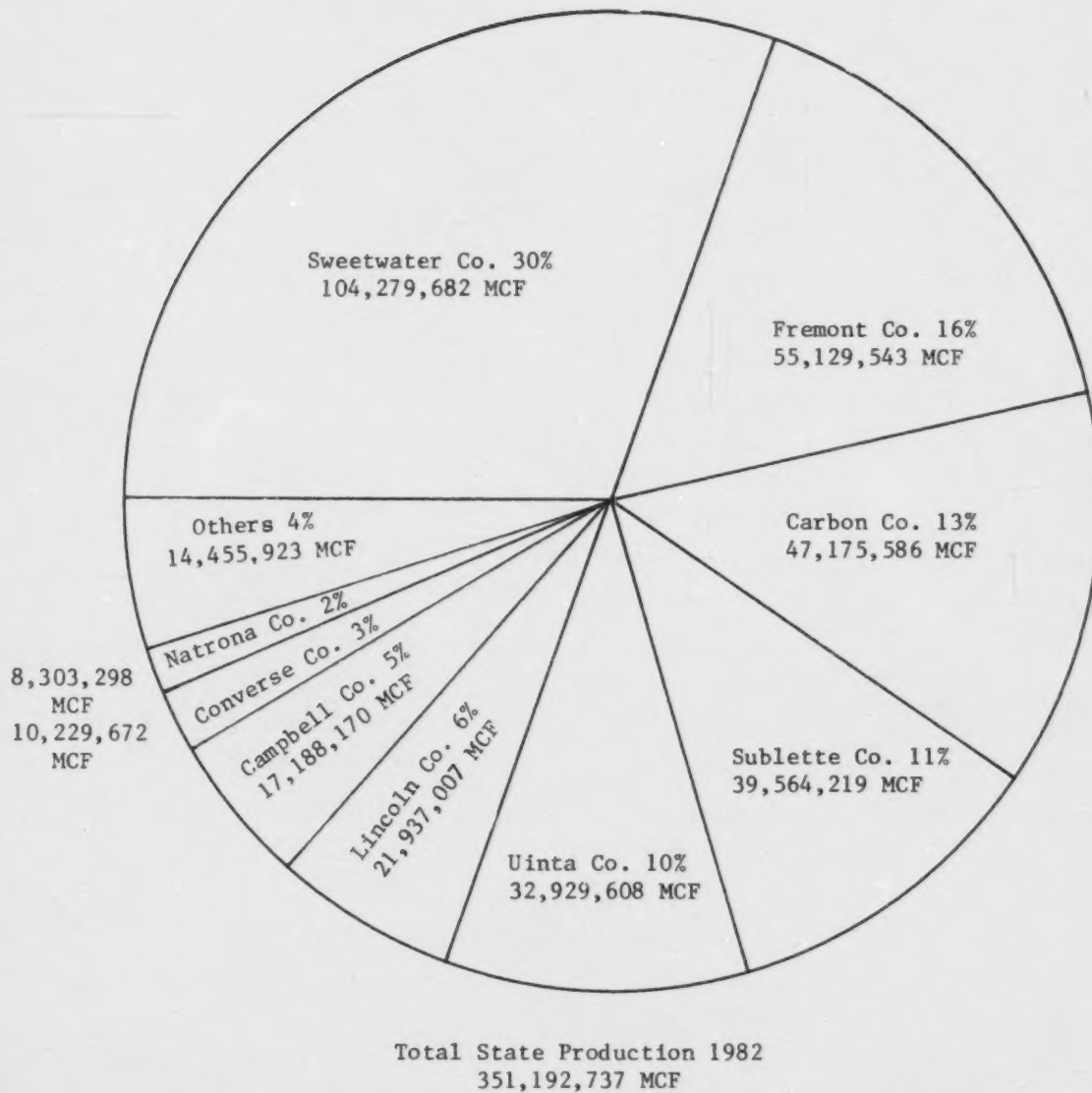
Wyoming currently ranks seventh in natural gas reserves in the United States. The three leading states, Texas, Louisiana, and Alaska, alone, account for about three-fourths of the total reserves.

Wyoming is sixth in natural gas production, behind Texas, Louisiana, Oklahoma, New Mexico, and Kansas, in that order.

Industrial, commercial, and domestic heating and a fuel for industrial processes have always been, virtually, the only markets for Wyoming natural gas.

The accompanying table shows historical Wyoming natural gas production.

1982 NATURAL GAS PRODUCTION



HISTORICAL NATURAL GAS PRODUCTION

<u>Year</u>	<u>Gross MCF</u>	<u>Net Taxable MCF</u>
1918*	4,338,840	
1919	6,014,000	
1920	10,312,000	
1921	15,608,000	5,729,963
1922	23,427,000	10,628,238
1923	35,523,000	25,370,247
1924	46,036,000	37,674,875
1925	45,539,000	35,432,436
1926	46,567,000	35,933,311
1927	43,581,000	36,205,467
1928	47,490,000	41,474,389
1929	44,648,000	38,253,618
1930	43,219,000	36,116,642
1931	39,770,000	34,943,043
1932	28,938,000	32,825,682
1933	25,830,000	27,716,094
1934	23,148,000	27,437,123
1935	26,643,000	29,856,668
1936	29,322,000	33,241,655
1937	31,023,000	33,418,463
1938	38,400,000	32,655,704
1939	44,700,000	28,828,909
1940	40,000,000	34,606,554
1941	43,409,000	37,242,868
1942	46,471,000	39,657,890
1943	52,000,000	40,233,211
1944	51,000,000	42,761,950
1945	52,000,000	44,571,599
1946	49,700,000	41,479,104
1947	57,740,000	47,748,881
1948	79,280,000	51,103,206
1949	87,450,000	53,948,462
1950	92,050,000	66,266,055
1951	95,600,000	73,136,179

Historical Natural Gas Production - con't.

<u>Year</u>	<u>Gross MCF</u>	<u>Net Taxable MCF</u>
1952	104,300,000	77,253,383
1953	104,900,000	77,982,000
1954	100,400,000	76,144,783
1955	100,000,000	81,457,597
1956	102,000,000	91,072,880
1957	159,000,000	113,937,978
1958	158,000,000	120,449,451
1959	194,000,000	151,611,826
1960	213,800,000	169,747,464
1961	226,800,000	185,585,937
1962	230,800,000	195,104,386
1963	240,500,000	193,637,934
1964	259,900,000	221,588,565
1965	258,900,000	218,565,497
1966	266,966,000	216,263,811
1967	257,965,000	209,582,267
1968	283,916,000	220,631,045
1969	342,998,000	243,825,419
1970	317,970,129	260,037,715
1971	310,113,187	282,320,781
1972	308,668,300	285,426,141
1973	312,134,758	287,818,223
1974	291,521,549	265,600,635
1975	273,076,164	248,528,881
1976	330,220,509	260,752,431
1977	298,535,962	272,300,637
1978	372,526,289	273,724,975
1979	390,493,988	333,322,180
1980	450,553,045**	349,634,385
1981	437,014,500**	353,076,052
1982	459,321,013**	351,192,737
Cumulative Total	9,604,070,778	7,819,913,997

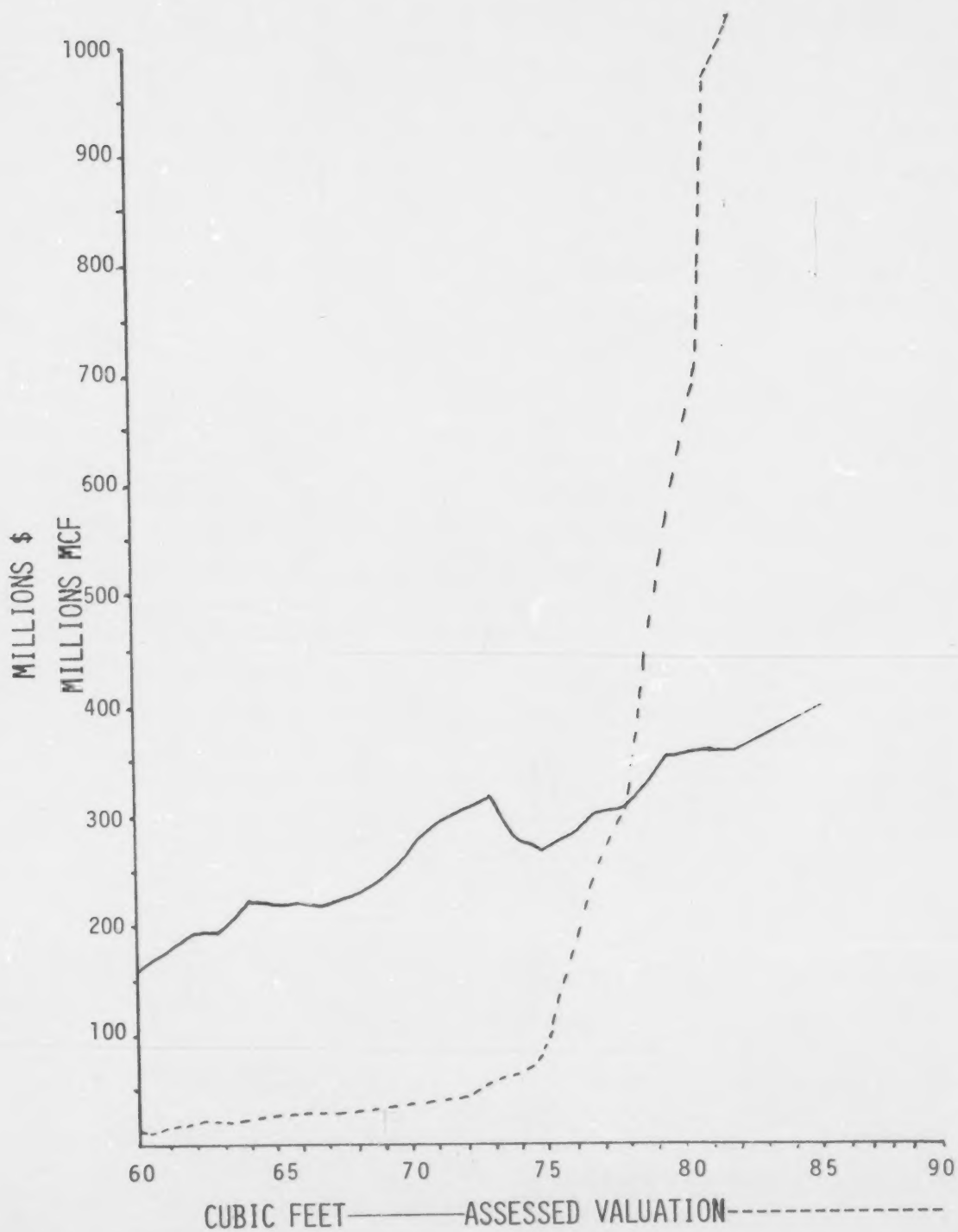
Sources: Bureau of Mines (1918 - 1969)

Wyoming Department of Revenue and Taxation (1970 - 1982)

**Wyoming Oil and Gas Commission

*Wyoming has had gas production since 1903, but it was included in other states.

NATURAL GAS PRODUCTION AND VALUATION 1960 - 1985



PETROLEUM

The first recorded reference to the occurrence of oil in Wyoming dates back to 1833, when Captain Bonneville visited the "Great Tar Spring" on the Popo Agie River near present day Lander.

The first commercial marketing of oil occurred in 1851 from an oil seep on Poison Spider Creek, west of present day Casper. Records indicate that Jim Bridger, Kit Carson, and others mixed the oil with flour and sold the product to settlers as axle grease.

The first oil field was discovered by Mike Murphy in 1884, when he drilled a 300 foot well near the "Great Tar Spring." This field, Dallas Dome, is still producing oil, 99 years after its discovery.

Pennsylvania Oil and Gas Company built the first small refinery in Wyoming at Casper in 1895. During the period 1900-1920, drilling revealed several of the state's largest fields, including Oregon Basin and Elk Basin in Park County, Garland in Big Horn County, and Lost Soldier in Sweetwater County.

The lack of nearby markets and the high cost of transporting oil by rail, resulted in low demand for Wyoming oil, and crude prices dropped to as low as 10¢ per barrel in the 1930's. It was not until World War II that development moved into full swing. This expansion continued into the 1970's.

Oil is derived from the alteration of organic matter by heat and pressure. Petroleum originates in sedimentary rock environments, but may migrate to other locations, so that there are oil reservoirs known from volcanic and metamorphic rock sequences as well. Most oil is found in sedimentary rocks, in occurrences which may be divided into structural or stratigraphic traps. A structural trap is one where the oil is maintained in place by mechanical means, such as, folding, faulting, or some combination of the two. Stratigraphic traps involve a change in rock type, from permeable to impermeable, with the oil held in the permeable portion. A stratigraphic unit which changes from a sandstone (permeable) to a shale (impermeable) is an example of a stratigraphic trap. Most of the early discoveries in Wyoming and elsewhere, were in large structural traps with obvious surface expression. Modern exploration is focused on deep, subtle structures using sophisticated seismic techniques to discover new reserves. The delineation of stratigraphic traps is based on careful analysis of trends, and rock types, along with the application of interpretation and imagination by petroleum geologists.

Reservoir rocks in Wyoming range from Tertiary to Precambrian in age. In general, fields in stable interior basin areas are characterized by stratigraphic traps and produce from younger (Cretaceous and Tertiary) formations. Fields in more highly deformed basin margins are usually characterized by structural traps, and production is from older rocks.

The largest oil producing regions in Wyoming, in order, are: the Powder River Basin, Green River Basin, Big Horn Basin, Overthrust Belt, and Wind River Basin.

In 1981, a total of 1,724 wells were drilled in Wyoming; 1,134 development wells, and 590 exploration wells. The majority of both exploration and development wells over the past ten years, have been drilled in the Powder River Basin.

Early oil production in Wyoming peaked in 1923, after discovery and development of large fields, such as: Salt Creek, Elk Basin, Oregon Basin, and Hamilton Dome. A long period of decline followed these early discoveries until the second World War led to a resurgence which continued to 1970, when the maximum annual production of 155,743,349 barrels was recorded. Since 1970 production has been steadily declining, due to depletion of the old large fields, like Salt Creek. At present, over 43 percent of Wyoming's production comes from ten large fields which average 51 years in age. Newer discoveries in the state are concentrated primarily in Campbell County (Hilight, Raven Creek, Hartzog Draw fields) and the Overthrust Belt.

Wyoming ranks sixth in crude oil production, behind Texas, Alaska, Louisiana, California, and Oklahoma. However, it dominates Rocky Mountain production, with 44% of the production from the area, and 64% of the reserves.

The dominant use of petroleum is as a fuel for internal combustion engines or industrial and residential heating. However, petroleum derivatives are used to manufacture many kinds of lubricating and hydraulic fluids, fibers, medicines, plastics, and a number of other products, ranging from paints to synthetic rubber.

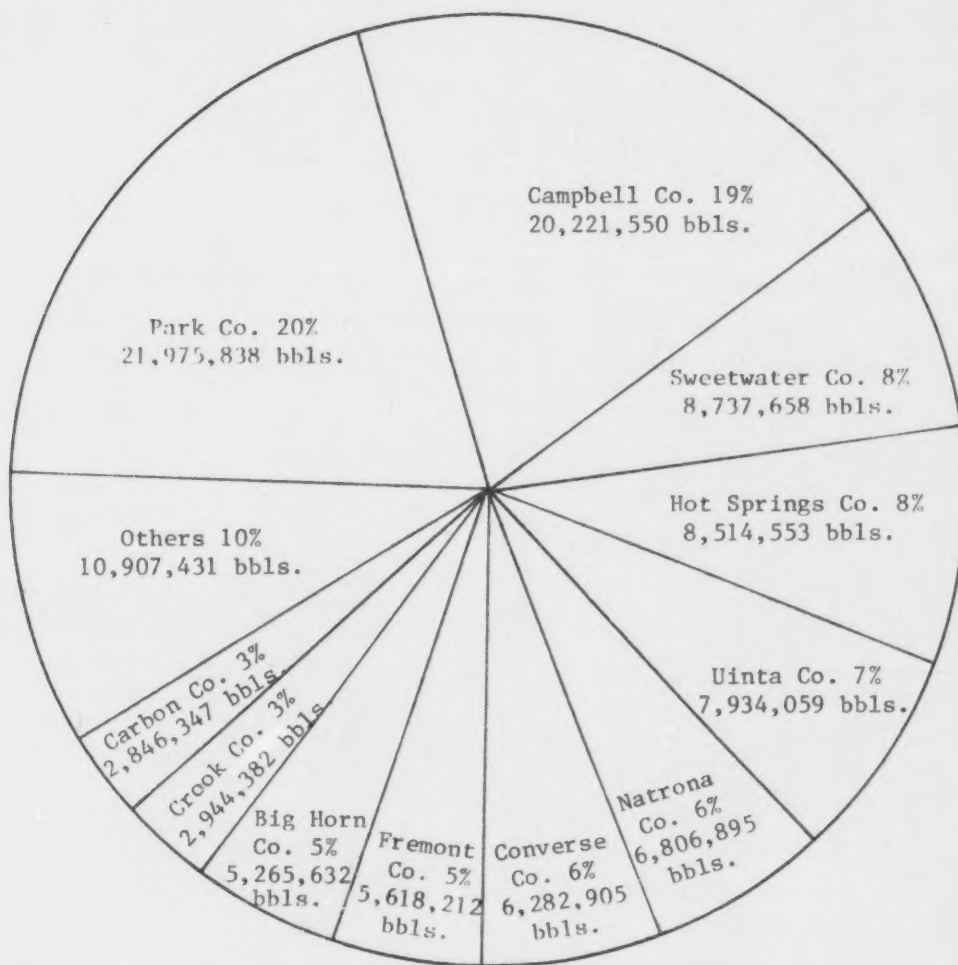
Although production has been slowly declining, valuation of oil production in Wyoming has risen dramatically since the initiation of OPEC price increases in the early 1970's, and especially since decontrol of domestic oil prices in 1980. In 1981, oil production accounted for 44% of the total state valuation, some 3.6 billion dollars. Valuation will stabilize or even decrease in the short term, but petroleum will remain the state's most valuable mineral product.

Currently, six refineries are operating in Wyoming with a total capacity of 163,000 barrels per day. These refineries can process less than half of Wyoming's daily crude oil production, the remainder being transported by pipeline to neighboring states.

The most recent estimate of discovered oil reserves in Wyoming, made by the American Petroleum Institute, reports a total state reserve of 808 million barrels. This figure has been declining steadily since 1971, and although new discoveries in the Overthrust Belt will slow the decline, the downward trend will continue.

Given new exploration techniques, along with enhanced recovery methods, which are coming into increasing use, Wyoming will continue to lead the Rocky Mountain region in oil production for some time. If oil shale utilization ever reaches large scale fruition, Wyoming will be a significant oil producer well into the next century.

1982 CRUDE OIL PRODUCTION



Total State Production 1982
108,055,462 Barrels

HISTORICAL PETROLEUM PRODUCTION

<u>Year</u>	<u>Gross Bbls.</u>	<u>Net Taxable Bbls.</u>
1894	2,369	
1895	3,455	
1896	2,878	
1897	3,650	
1898	5,475	
1899	5,560	
1900	5,450	
1901	5,400	
1902	6,253	
1903	8,960	
1904	11,542	
1905	8,454	
1906	7,000	
1907	9,339	
1908	17,775	
1909	22,137	
1910	115,430	
1911	186,695	
1912	1,572,306	
1913	2,406,522	
1914	3,560,375	
1915	4,245,525	
1916	6,234,137	
1917	8,978,680	
1918	12,596,287	
1919	13,172,000	
1920	16,831,000	
1921	19,333,000	16,066,125
1922	26,715,000	16,926,406
1923	44,785,000	21,769,826
1924	39,498,000	35,714,747

Historical Petroleum Production - con't.

<u>Year</u>	<u>Gross Bbls.</u>	<u>Net Taxable Bbls.</u>
1925	29,173,000	32,495,306
1926	25,776,000	24,753,727
1927	21,307,000	21,681,708
1928	21,461,000	18,508,699
1929	19,314,000	16,895,390
1930	17,868,000	15,639,170
1931	14,834,000	13,008,011
1932	13,418,000	11,353,006
1933	11,227,000	10,124,504
1934	12,556,000	11,108,115
1935	13,755,000	12,247,316
1936	14,582,000	13,062,296
1937	19,166,000	17,704,873
1938	19,022,000	17,781,813
1939	21,454,000	20,465,457
1940	25,711,000	24,242,112
1941	29,878,000	28,378,725
1942	32,812,000	30,259,013
1943	34,253,000	31,454,751
1944	33,356,000	30,554,213
1945	36,219,000	33,253,522
1946	38,977,000	35,847,249
1947	44,772,000	40,662,626
1948	55,032,000	49,978,630
1949	47,890,000	44,150,095
1950	61,631,000	56,411,712
1951	68,929,000	63,444,374
1952	68,074,000	62,723,252
1953	82,618,000	76,839,278
1954	93,533,000	85,005,784
1955	99,483,000	91,006,385
1956	104,830,000	96,278,109

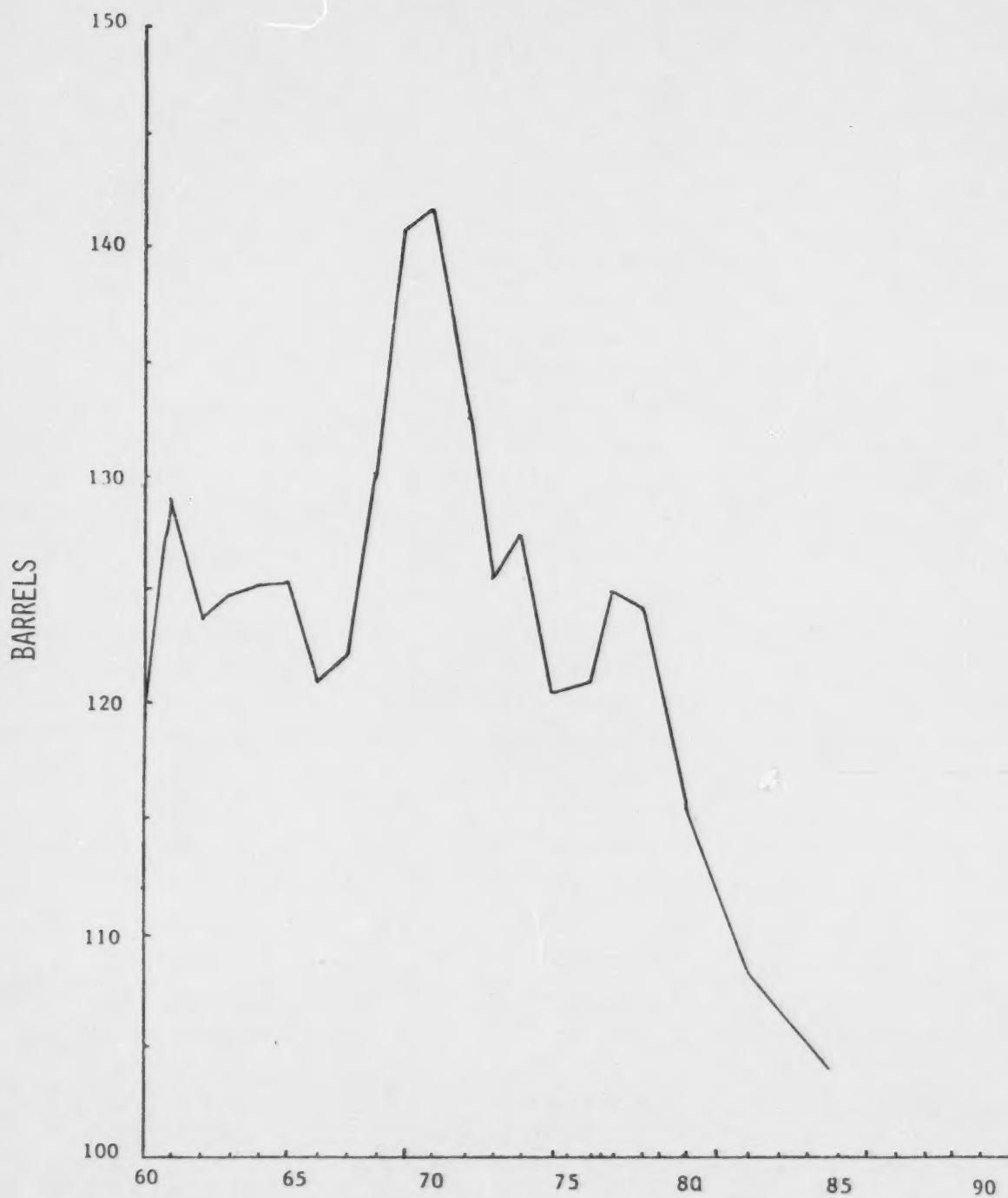
Historical Petroleum Production - con't.

<u>Year</u>	<u>Gross Bbls.</u>	<u>Net Taxable Bbls.</u>
1957	106,616,000	100,373,021
1958	109,584,000	103,483,116
1959	125,968,000	113,643,205
1960	133,910,000	121,097,650
1961	141,937,000	128,657,407
1962	135,847,000	123,381,779
1963	144,407,000	123,852,669
1964	138,752,000	125,376,557
1965	138,314,000	125,136,181
1966	134,470,000	121,638,887
1967	136,310,000	122,816,724
1968	144,250,000	129,958,723
1969	154,945,000	140,522,875
1970	155,743,349	141,546,503
1971	146,261,295	132,588,059
1972	137,564,566	125,222,375
1973	139,054,568	126,943,274
1974	138,735,974	127,555,252
1975	132,237,026	120,629,951
1976	134,148,510	120,571,157
1977	135,994,695	124,328,857
1978	137,384,886	122,799,348
1979	126,669,861	115,678,022
1980	126,361,962*	114,284,682
1981	118,844,000*	111,912,600
1982	117,898,667*	108,055,462
Cumulative Total	4,925,476,013	4,399,572,661

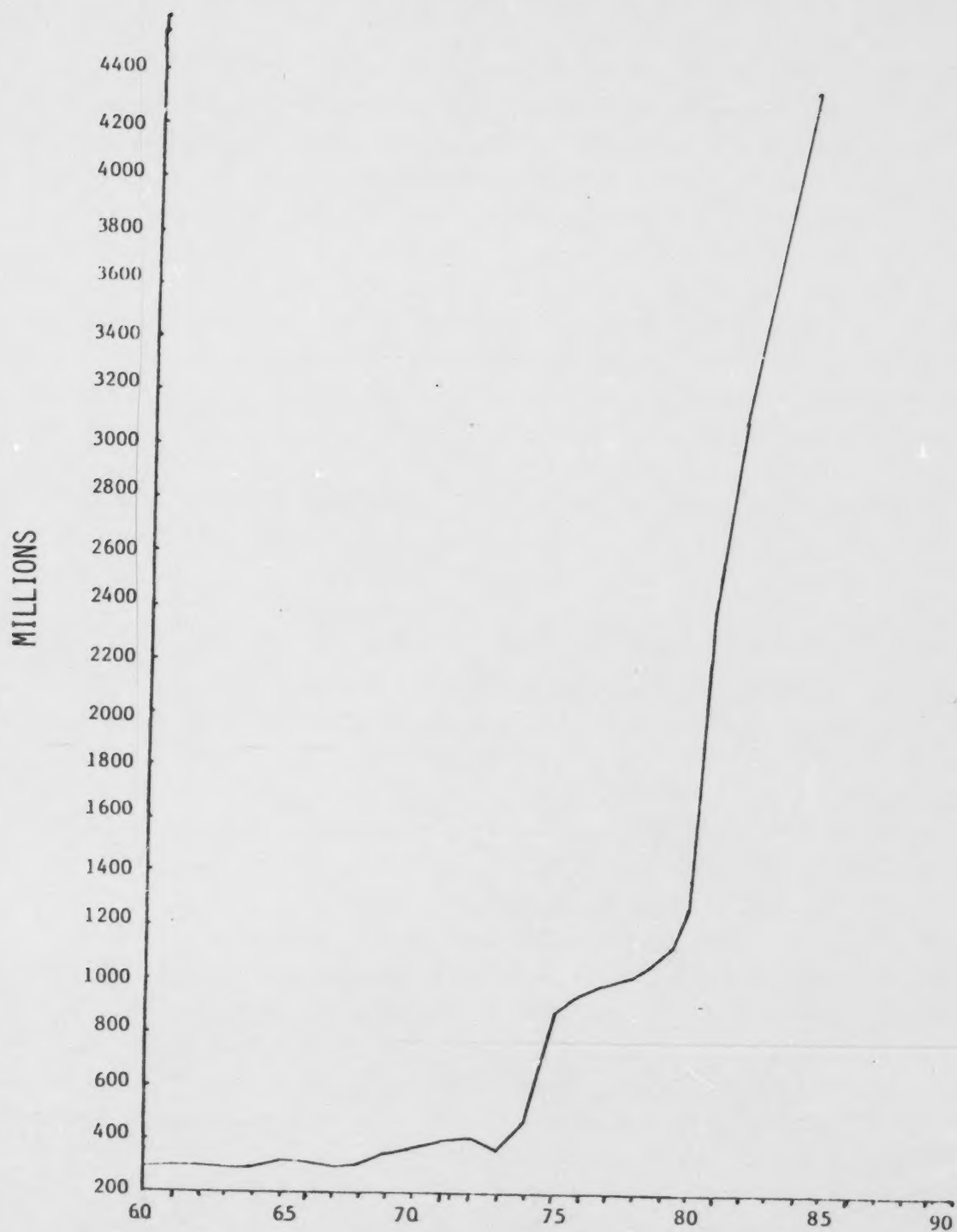
Sources: Bureau of Mines (1894 - 1969)
Wyoming Department of Revenue and Taxation (1970 - 1982)

*Wyoming Oil and Gas Commission

OIL PRODUCTION 1960 - 1985



OIL VALUATION 1960 - 1985



TRONA

The world's largest deposit of trona is found in Wyoming's Green River Basin. From the deposit, the state produces about 95 percent of the nation's supply of natural soda ash. Several deposits of natural soda ash are known in the western United States, but only Wyoming and California have active mines. Deposits have also been identified in several other countries, but the only one currently producing is Kenya.

Trona is a water-bearing sodium bicarbonate compound with many uses. Trona originated as a precipitate from a large fresh-water lake, Lake Gosiute, which covered as much as 15,000 square miles of surface in southwestern Wyoming. The trona was precipitated when Lake Gosiute underwent a period of restricted circulation and became highly saline at the same time as elevated temperatures resulted in increased evaporation.

More than 40 individual beds of trona underlie an area of about 1,300 square miles. It is estimated that some 50 billion tons of mineable trona, plus an additional 30 to 40 billion tons of marginal trona, are contained in these beds.

In 1938, Mountain Fuel Supply Company drilled an oil and gas test well northwest of Green River, Wyoming, and discovered a brine rich in trona. Exploration by the Union Pacific Railroad, in 1940-1942, indicated the presence of extensive reserves of trona. In 1946, Westvaco, the predecessor of FMC Corporation, sank a 1500 foot shaft to the main trona deposit and constructed a pilot refinery at the surface. The first soda ash was produced by FMC in 1950, with Stauffer Chemical coming on line in 1962, Allied Chemical in 1968, Texasgulf in 1975, and Tenneco Oil Company in 1982.

All Wyoming trona mining is done underground. Room and pillar methods and coal mining equipment, modified to withstand the harder ore, are used.

Both conventional and continuous mining techniques have been traditionally used, but recently long wall mining has been successfully employed.

In the past, soda ash was primarily produced synthetically by the Solvay process. This process combines salt (sodium chloride) and calcium carbonate (limestone) to make sodium carbonate (soda ash). Only one plant using the Solvay method is still in operation in this country - in New York State. The Solvay plant shutdowns were the result of high capital, labor, and energy requirements, but the greatest factor was the environmental considerations. For

each ton of soda ash produced by the Solvay process, about 1.7 tons of waste are generated, which poses an enormous disposal problem.

Trona is refined by first subjecting the ore to a heat of 400°F to remove water of crystallization, combustible materials, and carbon dioxide. This crude soda residue is then taken into water solution and filtered to remove insoluble residues. The filtered material is then dried. The final product is pure soda ash.

Trona's primary use is in glassmaking, which takes around 55% of the United States' consumption. The chemical industry accounts for 23% of consumption, followed by soap and detergent at 5%, pulp and paper manufacturing at 4%, water treatment at 3%, and 10% in various applications including pharmaceuticals, photography, metallurgy, and petroleum refining.

Wyoming trona production has grown from 29,658 tons in 1950, to 11,787,731 tons in 1981. Valuation of 1981 production was \$147,417,617. The short-term future of Wyoming trona is less favorable than earlier predictions, due to slumps in housing and the automobile industry, two prime users of glass, which is trona's most important market. In the longer term, significant growth in Wyoming's trona market would seem to be likely to come from Europe, where most soda ash is currently produced by the Solvay process, which faces the same problems there that led to the shutdown of the industry in this country.

Whatever the demand, Wyoming possesses the resources to meet it. If trona had been mined at the current rates since the year 1 A.D., only 20% of the known reserves would have been depleted, and if mining had proceeded at the same rate since the rise of the first dynasty in Egypt, 50% of the known reserves would still remain untouched.

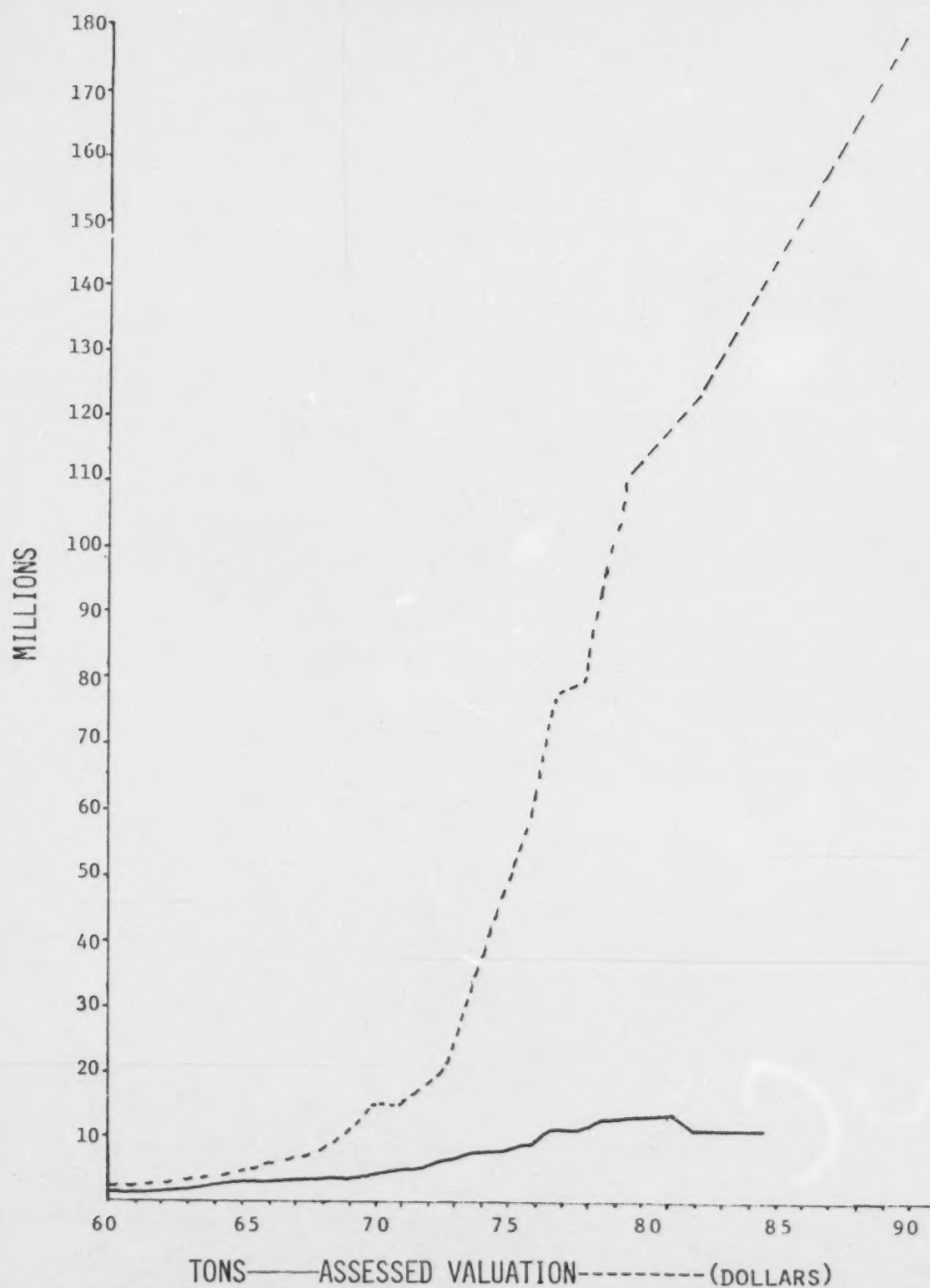
An annual compilation of trona production in Wyoming is given in the following table.

HISTORICAL TRONA PRODUCTION

<u>Year</u>	<u>Net Tons</u>
1950	29,658
1951	76,769
1952	56,733
1953	262,001
1954	465,581
1955	529,311
1956	541,456
1957	633,917
1958	564,474
1959	747,164
1960	862,879
1961	809,762
1962	1,082,119
1963	1,200,525
1964	1,480,746
1965	1,782,745
1966	2,147,390
1967	2,323,475
1968	2,793,325
1969	3,708,657
1970	4,022,304
1971	4,203,677
1972	4,783,946
1973	6,029,984
1974	7,070,617
1975	7,379,792
1976	8,800,607
1977	10,215,602
1978	9,974,237
1979	11,771,985
1980	12,159,241
1981	11,787,731
1982	<u>10,073,690</u>
Cumulative Total	130,372,107

Source: Wyoming Department of Revenue and Taxation

TOTAL TRONA PRODUCTION & VALUATION



URANIUM

Uranium was discovered as an element in 1789 and isolated as a metal in 1842. A few minor uses for uranium salts and medical demand for radium created a small market in the 1920's and 1930's. So little was known about possible ore sources in the United States that the uranium ore used in the production of the two atomic bombs dropped on Japan came from the Belgian Congo. The Atomic Energy Commission was appointed by President Truman in 1946. In the late 1940's and early 1950's, the public was encouraged to prospect for uranium and the first great uranium rush was on.

Uranium is a widespread, though uncommon, primary constituent of crystalline rocks of the earth's crust. As a result of weathering processes, it is often removed from these source rocks and redeposited in sediments. Uranium deposits are known from rocks as old as Precambrian, and as recent as Pleistocene, and all ages in-between.

The most important deposits of uranium in Wyoming occur in permeable sandstones of Tertiary age. The uranium was originally contained in the crystalline rocks which form the cores of the state's mountain ranges. The uranium was leached from these rocks and precipitated in the much younger sandstones.

Uranium ore is recovered by open pit, underground, and solution mining methods. Open pit and underground mining is carried out in the usual manner, the only difference being that the material to be removed is determined by using a scintillation counter to delineate the radioactive ore.

In solution mining, a shaft is drilled into the ore body. Chemicals are introduced down this shaft which dissolve the uranium out of the rock. The uranium-containing solution is removed through another well or wells drilled to the depth of the ore body. The solution on the surface is processed much as the solutions obtained by conventional milling methods to remove the dissolved uranium. Due to the toxic nature of the solutions used, great care must be exercised in solution mining operations to prevent ground water contamination.

Milling involves grinding and crushing the ore, after which it is treated with acid to take the uranium into solution. The leachate is treated with various chemicals to concentrate the uranium and simplify it chemically. The final concentrate is evaporated to yield "yellow cake." The yellow cake consists almost entirely of uranium 238 and a small percentage of uranium 235, the fissionable isotope. The uranium must be enriched to around 3.5% U 235 for power-reactor use, while weapons grade material has a U 235 content of over 90%. The yellow cake is shipped to various conversion and enrichment facilities to be upgraded to the required level.

The primary uses of uranium are as fuel for nuclear reactors and national defense. The drop in power demand coupled with uneasiness over plant reliability have combined to slow the construction of nuclear power plants, and greatly reduce the requirements for uranium. Defense requirements are difficult to determine, but new weapon construction plus upgrading of existing stock piles (nuclear warheads deteriorate through time) has increased, though not enough to increase demand significantly. Other uses for uranium are in X-ray tubes, ultraviolet lamps, glass colorants, ceramics, and steel.

Wyoming's first production of uranium occurred in 1953, when 5,156 tons of ore were mined. The largest production of 5,517,070 tons was attained in 1978. Wyoming ranks second to New Mexico in both uranium production and amount of reserves. The history of Wyoming uranium production is given in the accompanying table.

The Wyoming uranium industry mirrors the current slump affecting the entire industry. From 19 operations employing over 5,400 workers in early 1980, the industry has shrunk to 11 operations (2 of which will suspend activities by October) employing less than 2,000. Yellowcake, which had reached spot market prices of \$40.00 per pound in mid-1980, declined to \$17.25 per pound in 1982. The current market price is \$21.25 per pound. This increase in value probably reflects reduction in mine stock piles and adjustments due to mine closures rather than any increase in real demand. Production is projected to show a significant near-term decline. Estimates of when the industry will recover vary, but 1986 to 1990 is the range given, and Wyoming's uranium industry will follow the national trend, however it materializes.

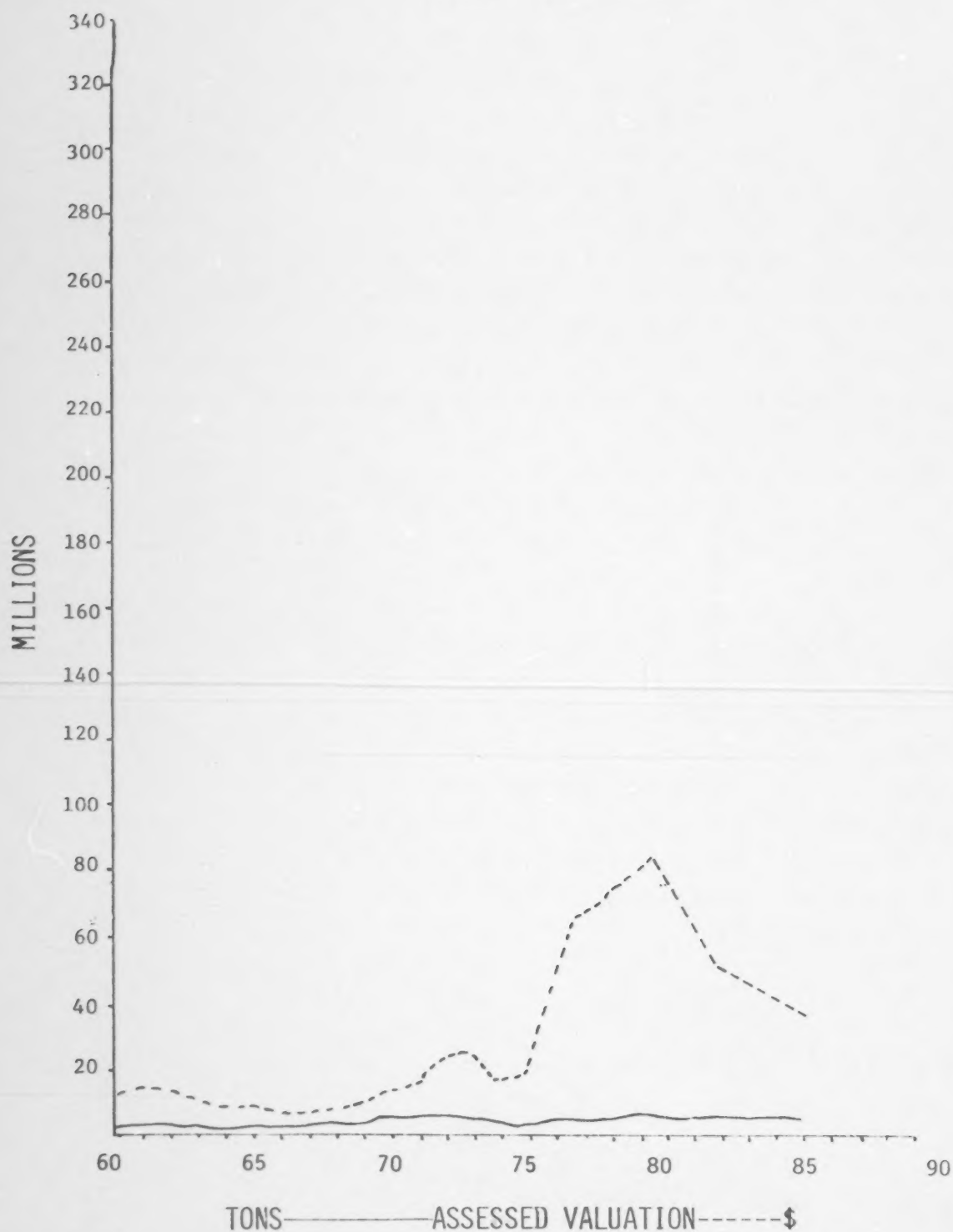
HISTORICAL URANIUM PRODUCTION

<u>Year</u>	<u>Net Tons</u>
1953	5,156
1954	10,443
1955	45,782
1956	116,463
1957	264,133
1958	559,053
1959	810,514
1960	1,307,919
1961	1,542,192
1962	1,394,704
1963	1,289,595
1964	1,126,827
1965	1,222,821
1966	916,415
1967	1,242,187
1968	1,977,258
1969	1,631,518
1970	2,042,074
1971	2,044,943
1972	2,390,100
1973	2,588,011
1974	2,287,697
1975	2,736,663
1976	3,302,422
1977	3,986,025
1978	5,517,070
1979	5,512,345
1980	5,352,337
1981	4,560,683
1982	<u>3,895,510</u>
Cumulative Total	61,679,494

Source: Wyoming Department of Revenue and Taxation

URANIUM PRODUCTION AND VALUATION

1960 - 1985



MISCELLANEOUS MINERALS

COPPER

Copper was the first metal utilized by man over 6,000 years ago. Native uncombined copper was utilized for tools, weapons, and jewelry, due to the ease with which it could be shaped.

Currently, over half of the copper produced is used in the electrical industry for wire, equipment, and components. Next to silver, copper has the highest electrical conductivity of any metal. Other uses of copper are in plumbing, instruments, household utensils, decorative items, and coinage.

Copper occurs as the native metal or combined in sulphides, oxides, and carbonates. These secondary compounds are the result of weathering and concentration of copper from its original source in low silica igneous rocks.

Copper mineralization occurs sporadically throughout every mountain range in Wyoming. Copper mineralization is most common in Precambrian rocks, but is found in younger rocks in places such as the northern Laramie Mountains and the Hartville uplift.

In the interval between 1899 and 1908, over 23.5 million pounds of copper were produced in Wyoming, mostly from the Encampment district, west of Laramie, and in this period Wyoming was one of the leading copper producing states in the nation. Copper production increased during World War I, mostly from the Hartville area, north of Wheatland. Since that time, Wyoming copper production has been insignificant. Recent speculation concerning reopening of the famous Ferris-Haggerty Mine in Carbon County, along with AMAX Minerals interest in opening a copper mine in the Kirwin district in the Absaroka Mountains in Park County, are very unlikely to come to pass as long as world copper prices remain at their current low levels.

DIAMONDS

Diamond is composed of carbon, arranged in a crystal structure which makes it the hardest natural substance known. Diamonds were first prized as gemstones centuries ago in India and Borneo. It was not until much later that the applications of diamond as an abrasive, in grinding wheels and drill bits, and as wire drawing dies, were realized.

Diamonds are produced in South Africa, the U.S.S.R., Brazil, and the East Indies. No natural diamonds are produced in the United States, although the General Electric Company has produced synthetic diamonds of industrial grade since 1955.

The primary source of diamonds is the mineral Kimberlite, a greenish gray crystalline rock which is the solidified lava conduit of an ancient volcano. Diamonds are produced naturally in the high pressures and temperatures found in pockets of molten rock deep beneath the surface. Exposure of these Kimberlite pipes results in weathering of diamonds from the rock and their concentration in stream gravels. About 50% of the diamonds recovered are taken by placer mining of old stream channels.

Kimberlite pipes occur along the eastern Wyoming-Colorado border. A number of small (less than 2 mm) diamonds have been extracted from these rocks. Cominco American conducted preliminary evaluation work on the deposits in Wyoming but these efforts have been abandoned.

GOLD

Gold has been treasured since ancient times due to its beauty, permanence, and the ease with which it can be worked. In the latter half of the 20th century, it has become a valuable industrial material, with applications in computers, shielding, high performance welding and other uses. Gold's most widespread use remains as a monetary standard. Nearly half of the gold that has ever been mined is in government vaults.

Gold is one of the "noble" metals. It does not combine chemically with other elements. Gold is found in a wide variety of geologic environments associated with various rocks and minerals. Due to its weight and lack of impurities, it is concentrated by stream action into placer deposits where it is recovered by dredging and washing the sediments.

Gold has been found in all of the mountain ranges of Wyoming. Past significant mining operations were located in the Wind River Mountains, the Medicine Bow Mountains, and the Sierra Madre Mountains. No mines in these districts were exploited below 400 feet, and many were abandoned while still in the ore body. Approximately 325,000 ounces of gold has been produced from Wyoming. No operations are currently active, although current gold prices have stimulated renewed interest and exploration.

GYPSUM

Gypsum has been used since ancient times for carving and decoration. The Greeks used it to manufacture plaster, which remains the principle use for the mineral. In the late 1800's a method to retard the setting of gypsum plaster was developed, and this revolutionized the industry by permitting the use of plaster in construction. The development of prefabricated wall board revolutionized the industry again in the 1960's. Approximately two-thirds of the gypsum currently marketed is in the form of prefabricated products.

Gypsum is precipitated primarily from sea water, but may be deposited in saline lakes or hot springs. It often occurs as a product of volcanic activity and may occur in metallic mineral veins.

Gypsum, in Wyoming, primarily occurs in layers in Permian, Triassic, and Jurassic red beds at various localities within the state. Some gypsum has been mined in Wyoming since the 1890's, but current production comes from mines in Albany, Big Horn, and Park Counties. Virtually all of Wyoming's gypsum output is utilized in the manufacture of wallboard for the construction industry and the manufacturing of cement.

JADE

Jade has been a prized gemstone in China and the Far East for a long time. It is valued for its toughness, ability to take a high polish, and the ease with which it is carved.

The term jade is applied to two different minerals which have roughly similar properties. The mineral jadeite is a sodium-aluminum silicate. It is hard and tough, and varies from white to greenish-white to emerald green. It has been found in Burma, Southern China, Tibet, Mexico, and South America. No jadeite has been found in Wyoming. The second variety of jade is the mineral nephrite, a calcium-magnesium-aluminum silicate. It is not quite so hard or tough as jadeite. Its color varies from olive-green through dark green to black. Light "apple-green" jade is the most valued. It has been found in China, Turkestan, Siberia, New Zealand, and Alaska, as well as Wyoming.

Jadeite occurs in metamorphic rocks in veins and masses. Nephrite occurs as veins in metamorphic rocks. Wyoming jade occurs as veins in Precambrian metamorphic rocks in the southern Wind River Mountain. Boulders and pebbles of jade occur around the southern end of the Wind River Mountains and on the north end of the Laramie Mountains to the east. Although the jade industry of Wyoming is small, it is well known throughout the world and provides some income and/or a hobby for many people.

CONSTRUCTION MATERIALS

The major construction materials mined in Wyoming are crushed rock for cement, sand and gravel, and limestone. The cement industry is the largest non-fuel minerals industry in the nation. Cement is vital to the construction and road-building industries and is literally the backbone of modern civilization. Wyoming does have one cement plant in Albany County.

Sand and gravel is the only mineral commodity which is produced in all 50 states, and coincidentally is the only one produced in all of Wyoming's 23 counties. Its primary uses are as aggregate for concrete and bituminous mixes, for road bases and coverings, and as fill. Pure sand is used in glass manufacture, foundry molding, and metallurgical applications.

Limestone is utilized as a building and decorative stone, road metal, aggregate, and in sugar beet factories where pure limestone is used as a source of lime and carbon dioxide in the refining process.

ZEOLITES

Zeolites are sodium and/or calcium-aluminum silicate minerals that occur in bedded clay deposits or in vesicles in volcanic rocks. They are useful due to their ability to exchange ions with solutions they come into contact with, with their greatest current use being in water softening. It is projected that they will be used on a large scale for the extraction of radioactive products from nuclear reactor wastes.

The Beaver Rim area of Fremont County contains layered zeolites bedded with clays exposed over a considerable area. There is no commercial production at this time.

2

COUNTY MINERAL PRODUCTION AND VALUATION

1983

ALBANY COUNTY

Mineral production in Albany County does not play a significant role relative to the total assessed valuation of the county but production does remain comparatively stable from year to year. Projections for future mineral activity in Albany County indicate there will not be any significant changes in production.

Total assessed mineral valuation in 1983 was \$5.1 million, down over \$1.9 million from 1982. This decrease was due to a \$4.68 per barrel decrease in oil valuation from \$34.46 per barrel to \$29.77 per barrel along with a production drop of 11,773 barrels. Production will continue to decline slowly, while valuation will increase over time, though not so rapidly as in the past.

Other commodities produced in Albany County are gypsum and cement rock, both by the Monolith Portland Cement Company in Laramie. 19,237 tons of gypsum were produced in 1982, along with 338,840 tons of cement rock.

BIG HORN COUNTY

72% of the total Big Horn County valuation and 91% of the county mineral valuation is due to crude oil. 1982 production fell by 48,000 barrels over 1981, and valuation fell from \$29.96 per barrel to \$27.10 per barrel. Oil production will continue to decline while valuation should level off and then show a longer term increase.

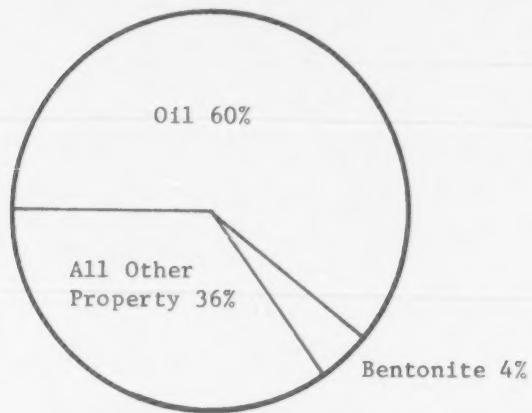
Natural gas production increased in 1982 by over 331,000 MCF. Production should increase through the mid-1980's.

Bentonite production decreased by 685,000 tons in 1982. A sharp drop in well drilling caused this much of a decrease, along with depressed steel and automobile markets. The bentonite industry will reflect the status of these markets.

Gypsum production will likely stay at a constant level for the next five years, with any fluctuations reflecting trends in the construction industry.

Other minerals produced in the county are clay, sand and gravel.

Big Horn County Valuation 1978 and 1983



1978 Total Valuation \$79,131,396



1983 Total Valuation \$199,473,946

CAMPBELL COUNTY

Campbell County leads the state in assessed mineral valuation. The 1983 valuation on 1982 production of its oil, gas, coal, and other minerals totaled \$1,289,397,068, or 23% of the total state valuation on minerals.

Unit valuation of oil fell from \$32.90 per barrel in 1982 to \$27.79 per barrel in 1983. Total oil valuation fell from \$665 million to \$616 million, while production dropped by 7,000 barrels. Production will probably continue to decline, while valuation will slowly increase over time.

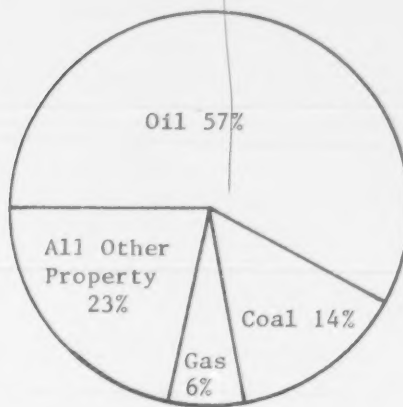
Natural gas production increased in 1982, and this trend should continue due to new finds plus production of gas formerly used in secondary oil recovery.

Campbell County, in 1982, produced 77.9 million tons of coal, 75% of the state total. Projections place Campbell County coal production at 95 million tons by 1986.

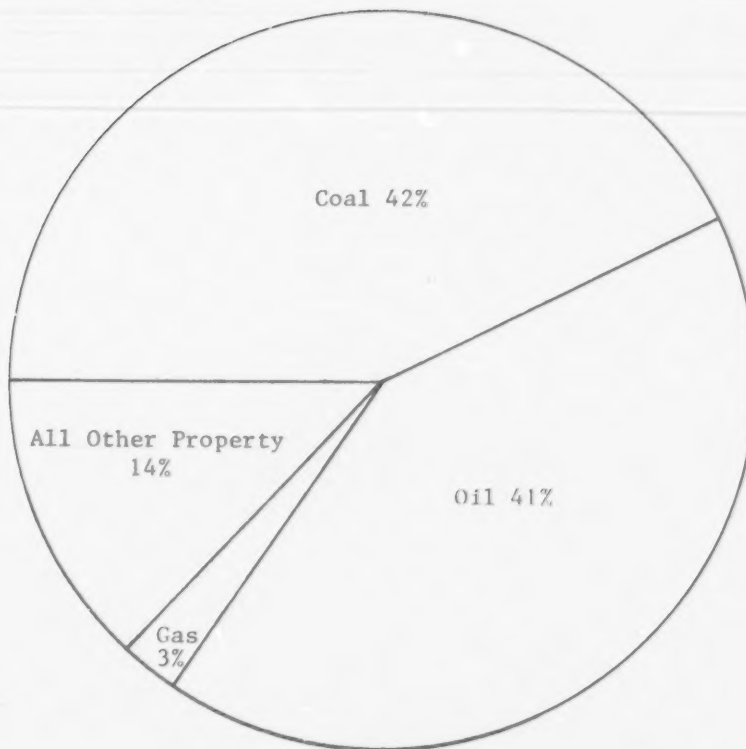
There is no active uranium development in the county due to current market conditions.

The Hampshire Energy coal to gasoline project is in an indefinite holding pattern.

Campbell County Valuation 1978 and 1983



1978 Total Valuation \$494,261,159



1983 Total Valuation \$1,505,787,830

CARBON COUNTY

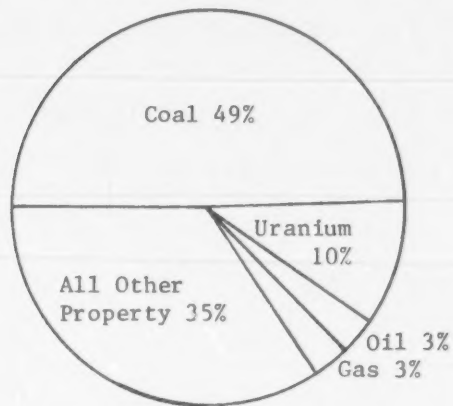
The most valuable mineral produced in Carbon County in 1982 was gas, with a production of 47,175,586 MCF valued at \$197,236,182 million.

Coal production was down by nearly 3.3 million tons in 1982. The soft coal market, along with the expense and difficulty of mining in Carbon County, combine to make it likely that coal production in the county will show a decrease for the next several years.

Carbon County uranium production decreased by almost 300,000 tons in 1982, and further decreases, at least through the mid-1980's, are likely.

Oil production showed a decrease of nearly 2.5 million barrels in 1982, and the slow down in drilling activity will continue for the near future.

Carbon County Valuation 1978 and 1983



1978 Total Valuation \$230,860,257



1983 Total Valuation \$556,781,459

CONVERSE COUNTY

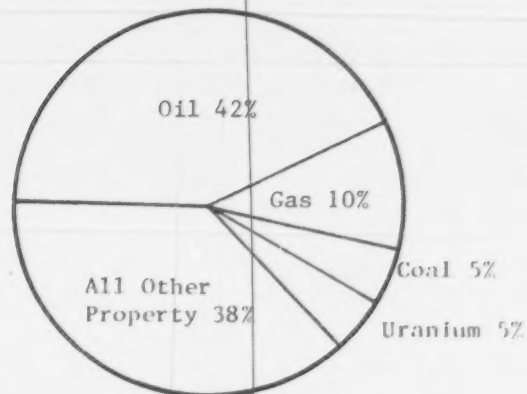
Oil production decreased by over 300,000 barrels in 1982 over 1981. Unit valuation fell from \$35.52 per barrel in 1982 to \$32.48 per barrel in 1983. As a result, the valuation on oil in 1983 was \$204.0 million, a decrease of \$30 million over 1981. Production will continue to decline, and a leveling off of unit valuation will see oil revenue fall in the county in the next few years.

Natural gas production decreased nearly 2.0 million MCF in 1982. Unit valuation per MCF remained essentially stable. This valuation should continue to rise through the mid-1980's.

2,822,000 tons of coal were produced in the county in 1982 by Pacific Power and Light to fuel their Dave Johnston Power Plant. This figure will stabilize at 3.2 to 3.5 million tons per year by 1985.

Converse County produced 512,000 tons of uranium ore in 1982. This is a decrease of over 700,000 tons compared to 1981. The Bear Creek Mine and Mill of Rocky Mountain Energy is the only currently active uranium operation in the county.

Converse County Valuation 1978 and 1983



1978 Total Valuation \$209,716,635



1983 Total Valuation \$358,823,867

CROOK COUNTY

Minerals are accountable for 76% of assessable property in Crook County. This is a decrease of 5% over 1982 and is explained by a drop of over \$4.00 per barrel in the price of crude oil.

Crook County oil has risen from \$7.87 per barrel in 1976 to \$27.67 per barrel in 1983. These prices will show a decrease over the near term.

Production decreased by 295,000 barrels in 1982, while valuation decreased by over \$3 million. County production will probably remain fairly stable through the mid-1980's.

Natural gas production was 63,253 MCF in 1982, a 50% decrease from 1981. Production should stabilize at 100,000 MCF.

Bentonite production decreased by 610,000 tons in 1982. This decrease was primarily caused by the fall off in oil and gas drilling.

Crook County Valuation 1978 and 1983



1978 Total Valuation \$47,025,487



1983 Total Valuation \$112,745,175

FREMONT COUNTY

Fremont County has historically had a diversified mineral industry, producing significant amounts of oil, gas, iron ore, and uranium. The closing of United States Steel's Atlantic City operation will reduce this diversity.

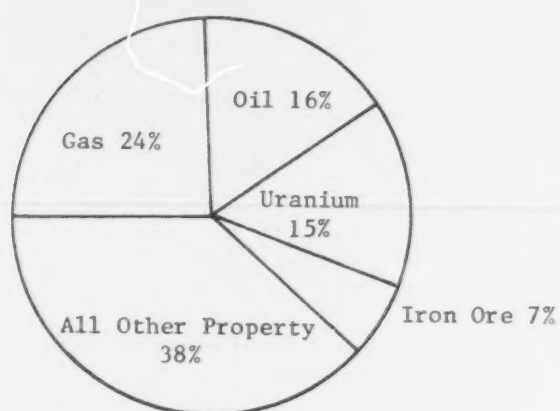
Oil accounts for 41% of the county's mineral valuation. Production declined by over 547,000 barrels in 1982, and a unit valuation decrease of over \$2.76 per barrel resulted in a valuation drop of over \$32,000,000. Valuation will increase again in the near future.

Natural gas production increased by over 2.6 million MCF in 1982, and Fremont County will be a significant gas producer for a long time.

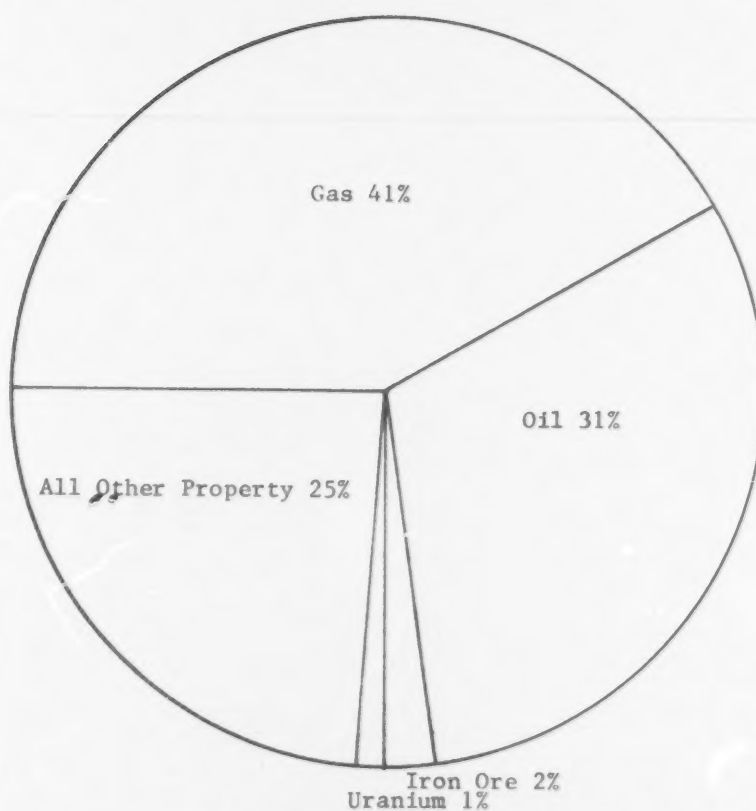
Fremont County was second in the state in uranium production in 1982, producing 808,687 tons. This is a decline of 374,718 tons from 1981, and the trend will continue downward until market conditions improve.

United States Steel Corporation's Atlantic City Mine and Mill closed for an indefinite period on October 1, 1983. This facility was the only iron ore mining operation remaining in the state.

Fremont County Valuation 1978 and 1983



1978 Total Valuation \$220,169,169



1983 Total Valuation \$512,014,667

GOSHEN COUNTY

Oil, and sand and gravel are the only mineral resources extracted in Goshen County. Production is from two small fields south of Torrington. Production in 1982 was 14,060 barrels, a relatively large jump of over 12,000 barrels from 1981.

Goshen County will produce a small amount of oil for some years, but the quantity will likely fluctuate.

Since most of the wells in Goshen County are low production stripper wells, their oil has been uncontrolled for some time. As a result, Goshen County oil has had one of the higher valuations per barrel in the state at \$31.41. Even so, this is a decrease of over \$4.00 per barrel from 1982.

Total county mineral valuation in 1983 was \$1,166,593.

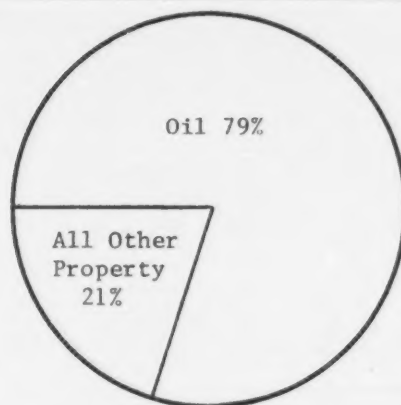
HOT SPRINGS COUNTY

Crude oil accounts for 90% of the total assessed valuation of Hot Springs County. Production has generally declined since the early 1960's but unit valuation has increased at such a rate that valuation has risen dramatically. In 1982, however, oil valuation fell by over \$3.00 per barrel while production declined by over 600,000 barrels. Unit valuations should again rise in the 1985-1990 time range.

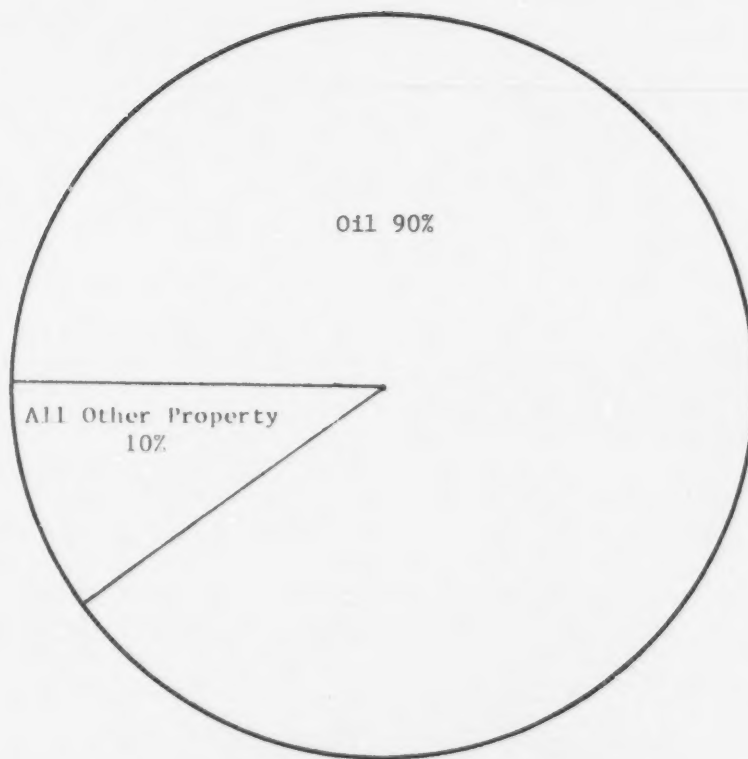
Oil production will show a slow decline through the mid-1980's.

Coal production in Hot Springs County increased in 1982 to over 66,000 tons per year. Applications to increase capacity of the Grass Creek Mine to 700,000 tons per year have been filed, and county coal production should show increases in the next several years.

Hot Springs County Valuation 1978 and 1983



1978 Total Valuation \$92,743,208



1983 Total Valuation \$259,674,197

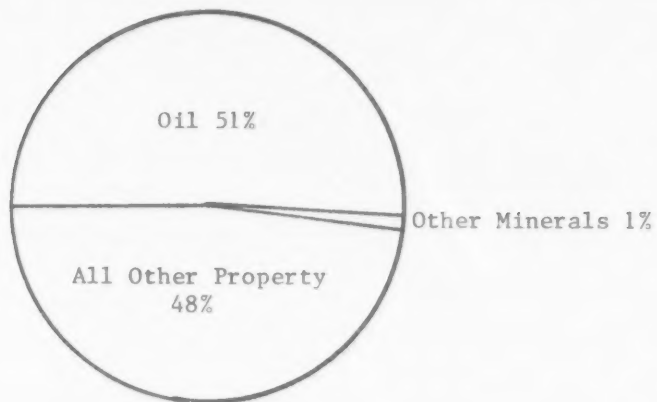
JOHNSON COUNTY

Oil accounted for 96% of the mineral valuation in Johnson County in 1983. Production decreased by over 267,000 barrels in 1982, and a decrease of nearly \$3.00 per barrel in valuation caused total valuation to fall by over \$16 million. Production will not rise, but unit valuation should show an upturn in the near term.

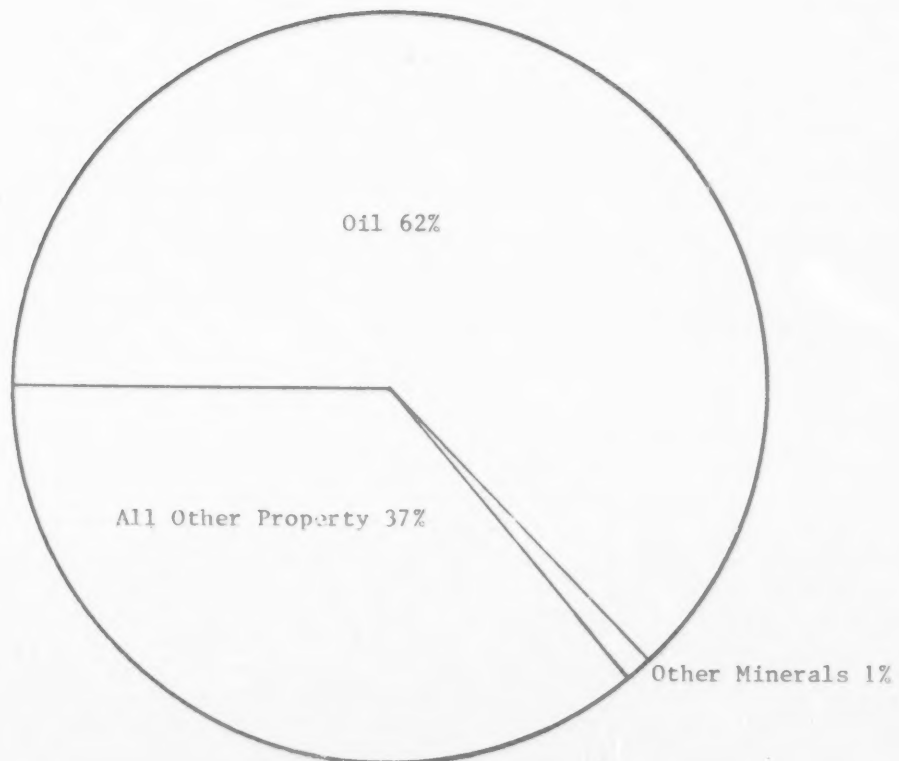
County bentonite production decreased by 102,000 tons in 1982. Bentonite production should rebound in the county through 1985, depending on market conditions.

Texaco owns the extensive Lake De Smet coal deposits, but has no current development plans.

Johnson County Valuation 1978 and 1983



1978 Total Valuation \$56,792,256



1983 Total Valuation \$119,548,547

LARAMIE COUNTY

Mineral production in Laramie County in 1982 was divided between oil, sand, gravel, and construction materials in dollar value. Oil production accounted for 86% of the county total of 10.6 million dollars, while construction materials (sand, gravel, and crushed rocks) were responsible for the remaining 14%.

Oil production in Laramie County has been generally declining. However, production in 1982 was 278,000 barrels, an increase of some 45,000 barrels over 1981. Production is projected to decline to around 200,000 barrels by 1985.

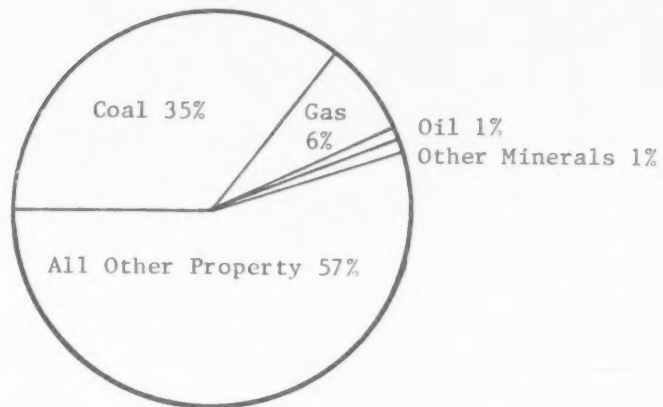
LINCOLN COUNTY

Minerals account for 65% of Lincoln County's valuation. Coal is responsible for 30%, gas at 30%, and oil at 3%.

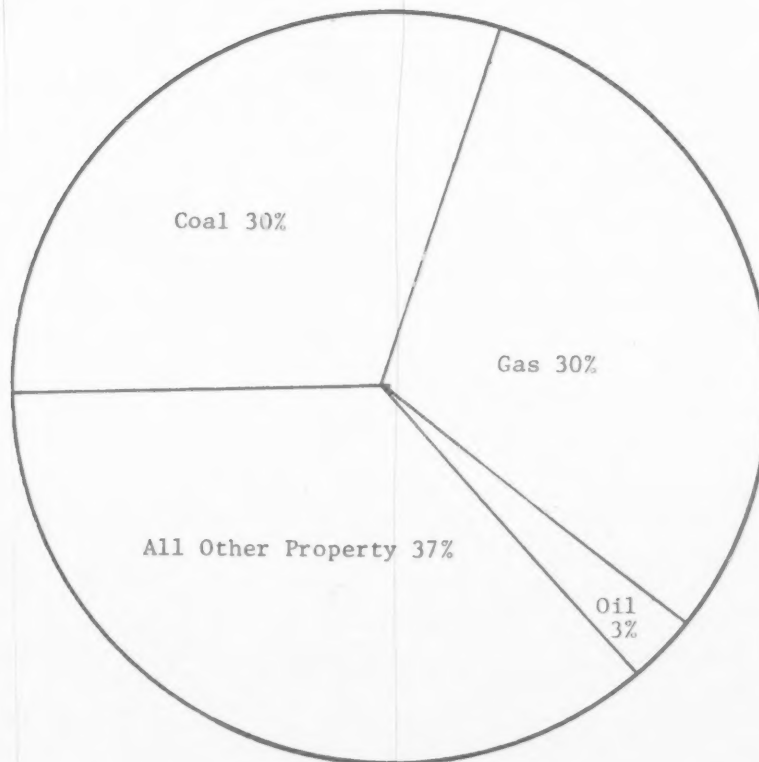
Lincoln County has produced coal since 1875. Coal production in 1982 was 4,314,363 tons, 683,000 tons less than in 1981. Additional production from mines at FMC and Rocky Mountain Energy should increase county production to around 5.5 million tons per year by 1985.

Lincoln County oil production in 1982 was 240,000 barrels, some 3,500 barrels more than 1981. Natural gas production was down some 3,000,000 MCF from 1981. Overall, gas production in Lincoln County will increase over the next several years, due to Overthrust development. If the Riley Ridge area goes into full scale production, Lincoln County's natural gas production will rise dramatically. The likelihood of that development is dependent on the difficulty of cleansing the gas of CO₂, as well as the effect of total decontrol in 1983 on prices.

Lincoln County Valuation 1978 and 1983



1978 Total Valuation \$126,841,116



1983 Total Valuation \$252,299,263

NATRONA COUNTY

Minerals are responsible for 50% of the total assessed valuation in Natrona County. Oil accounts for 86% of the mineral valuation.

Oil production in Natrona County again declined in 1982. 1982 production (6.8 million barrels) is down 100,000 barrels from 1981. Also, valuation on oil production decreased by \$20 million. This drop in valuation will stabilize and be reversed in the near future.

Uranium production decreased by 35,000 tons in 1982 in the county. Only the Bear Creek operation, of Rocky Mountain Energy, is currently active. Future activity will be dictated by market conditions.

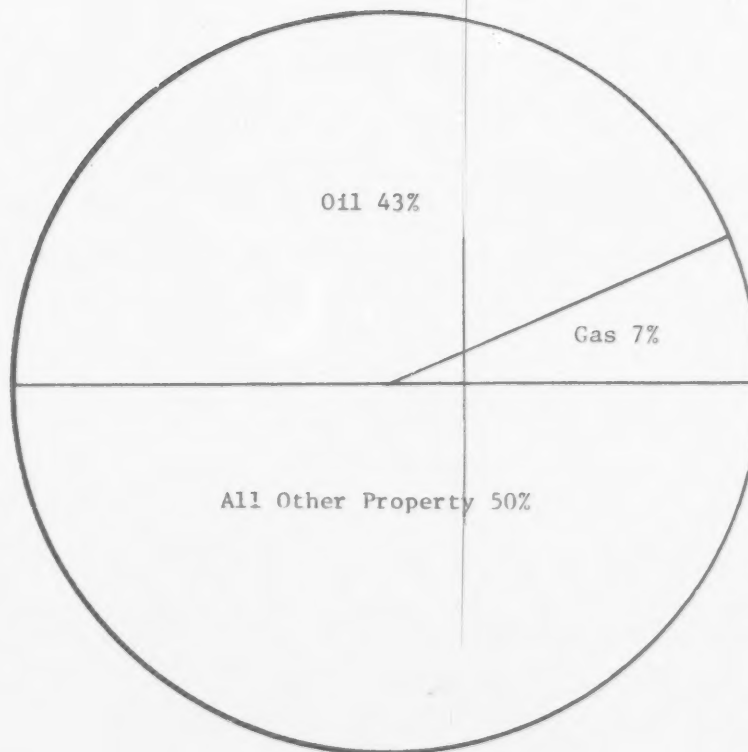
Bentonite production decreased by 20,000 tons in 1982, reflecting the slump in drilling activity. Benton Clay Company and Kaycee Bentonite Company operate mines in Natrona County. Output could reach 100,000 tons per year by 1985.

Other mineral products mined in Natrona County are sodium sulfate, sand and gravel.

Natrona County Valuation 1978 and 1983



1978 Total Valuation \$218,421,423



1983 Total Valuation \$497,049,904

NIOBRARA COUNTY

Niobrara County's oil production in 1982 fell from 1,384,447 barrels to 1,234,192 barrels. Assessable natural gas production rose from 126,423 MCF to 503,039 MCF. Niobrara County is one of the smaller producers in the state, accounting for only one percent of both the state's oil and natural gas production. In 1982, unit valuation of oil fell by \$2.62 per barrel while gas value nearly quadrupled. Production is so small that the county is not a reliable indicator of trends in state production.

PARK COUNTY

Park County is the largest oil producing county in the state. 1982 taxable production was 21,975,838 barrels, or 20% of the state total, a decline of almost 700,000 barrels over 1981. Most of Park County's production comes from the Oregon Basin and Elk Basin fields. Oregon Basin has produced over 250 million barrels since its discovery in 1912, while Elk Basin has produced over 375 million barrels since 1915. Production has been declining since the late 1960's. These fields will become increasingly less productive through time.

Oil accounted for 86% of the assessed valuation of Park County in 1982 and for 97% of the mineral valuation. Assessed value of oil in 1982 was \$586,049,250. This is a decrease of \$80 million from 1981. Unit valuation fell from \$29.46 per barrel in 1981 to \$26.67 per barrel in 1982.

Natural gas has declined in production since the early 1960's, with the exception of an increase in 1973, that was caused by a new pipeline. This pipeline allows lower quality gases to be mixed with the Oregon Basin and Elk Basin gas. In 1982, gas production decreased by over 1,000,000 MCF from 1981. Increased drilling should slow this trend during the next several years.

Gypsum production increased by 6,000 tons in 1982.

Amax Minerals has indefinitely postponed their plans for a copper mine at Kirwin.

Park County Valuation 1978 and 1983



1978 Total Valuation \$227,401,232



1983 Total Valuation \$685,146,506

PLATTE COUNTY

On July 9, 1980, the Colorado Fuel and Iron Corporation announced that their Platte County iron mine would be shut down immediately. The mine is on indefinite hold pending an improvement in the economic situation in the steel industry.

Platte County's mineral production, \$1,153,363, is from Guernsey Stone's dolomite quarry at Guernsey, Basin Engineering's marble quarry west of Wheatland, and miscellaneous sand and gravel operations.

SHERIDAN COUNTY

Coal accounted for 89% of Sheridan County's assessed mineral valuation of \$70,332,875 in 1982. Net taxable production rose by 266,268 tons over 1981, while valuation rose to \$62,742,657 million. All but 856 tons of the county's 1982 production of 3,002,677 tons came from Peter Kiewit and Sons' Big Horn Strip Mine. Production from this mine is expected to stabilize between 3.0 and 3.5 million tons annually by 1985.

Oil production in Sheridan County rose from 169,494 barrels in 1981 to 231,030 barrels in 1982. The valuation on 1982 production was \$7,279,846. Production should continue to decline over at least the near term.

The remainder of mineral production is scoria, sand and gravel, and had a valuation of \$253,080 in 1982.

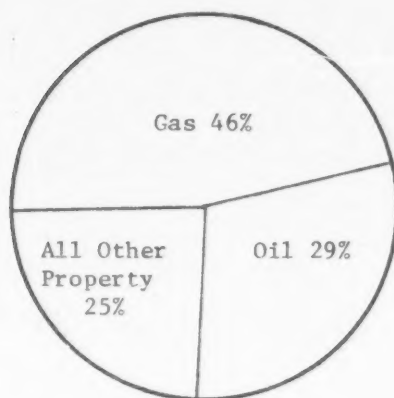
SUBLETTE COUNTY

Minerals account for 80% of the assessed valuation in Sublette County. Commodities, which make up this percentage, are oil 33%, and natural gas 41%.

Oil production decreased again in 1982 by 158,000 barrels. This trend may be reversed if Overthrust Belt discoveries are found in the county.

Natural gas production rose slightly from 38.2 million MCF to 39.6 million MCF. If the Riley Ridge development proves economically feasible, gas production will mushroom by the mid-1980's.

Sublette County Valuation 1978 and 1983



1978 Total Valuation \$78,299,489



1983 Total Valuation \$155,767,552

SWEETWATER COUNTY

Sweetwater County has one of the most diversified mineral economies in the state. Oil, gas, trona, and coal are produced in significant quantities in the county.

Oil is responsible for 22% of the total county valuation and 29% of the mineral valuation. New production from the Brady Field, and new discoveries in the southern part of the county, should maintain production levels for the next four to five years. 1986 production is estimated to be between 9 and 10 million barrels.

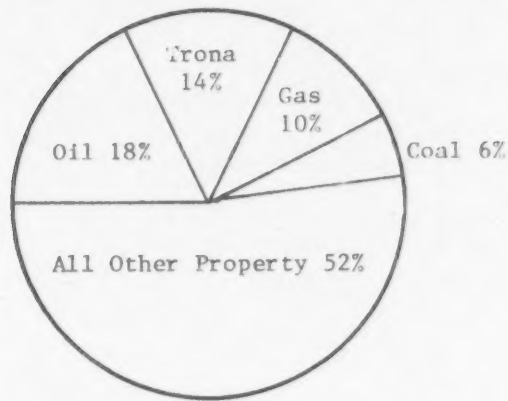
Sweetwater County is the largest producer of natural gas in the state. Discoveries of new gas fields have kept pace with the depletion of older fields. These new wells, being found in the western part of the county, will allow gas production to increase significantly through the 1990's. 1986 production is estimated to be 160 to 170 million MCF.

Trona continued to be the number one non-energy mineral produced in Wyoming. Production was \$10.0 million taxable tons and unit valuation was \$12.07 per ton. A fifth company, Tenneco Corporation, produced 646,000 tons of soda ash in 1982. The slump in housing and the auto industry is affecting Wyoming's trona industry, since glass manufacture absorbs over half of the soda ash produced.

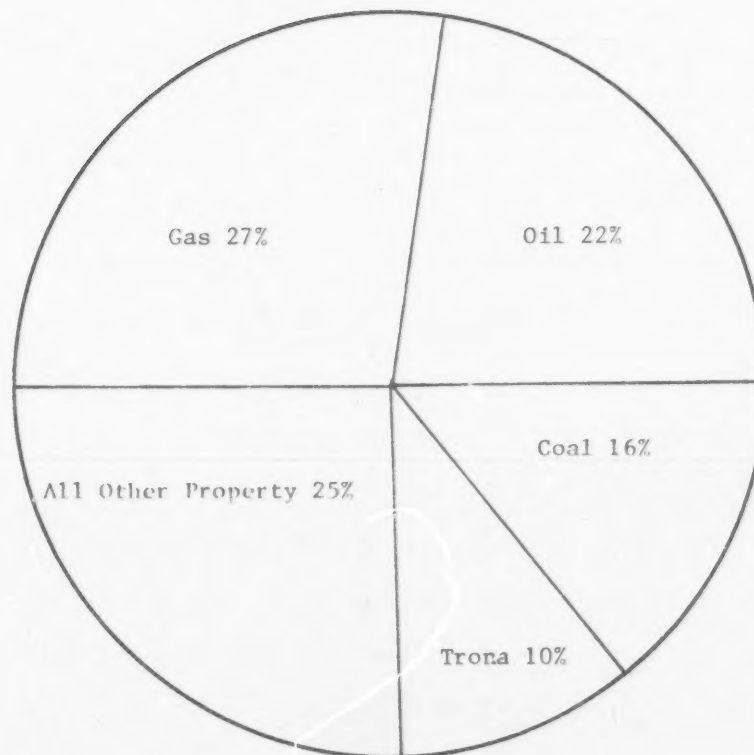
In 1982, Sweetwater County coal production increased by 1,558,000 tons over 1981. This rise may not be sustained in the short term. Nevertheless, several mines may come on line in the next several years, and 1986 county production level is projected to reach about 15 million tons per year.

Union Oil of California's Red Desert Mine and Mill is the largest operating uranium mining complex in the state at present. Unfortunately, it is scheduled to close by October of 1983.

Sweetwater County Valuation 1978 and 1983



1978 Total Valuation \$553,059,403



1983 Total Valuation \$1,259,151,451

TETON COUNTY

The only minerals produced in Teton County in 1982 were sand and gravel for a total mineral valuation of \$144,509, an increase of \$17,789 from 1981.

Oil and gas exploration play in Lincoln and Uinta Counties has spilled over into southern Teton County. A number of exploration leases and permits have been let. Proposed oil and gas leasing in the Cache Creek wilderness area, south of Jackson, has excited considerable controversy in the county, with the issue still not resolved.

UINTA COUNTY

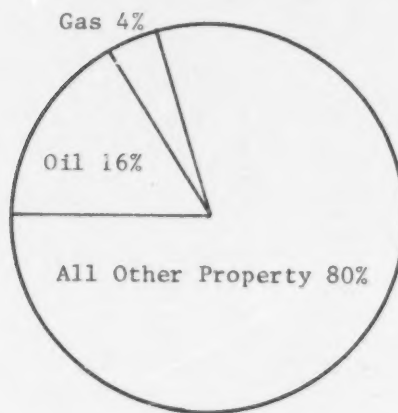
Uinta County has become the center of activity for exploration and development of oil and gas reserves in the Overthrust Belt area of the Rocky Mountains. The county's oil production has gone from 31,000 barrels in 1976 to 7.9 million barrels in 1982. At the same time, natural gas production has risen from 3.4 million MCF to 32.9 million MCF. With completion of Amoco and Chevron's large gas sweetening plants, gas production will show greater increases in the future.

As drilling activity slows and more production facilities come on line, the county's permanent tax base will stabilize and provide excellent revenue.

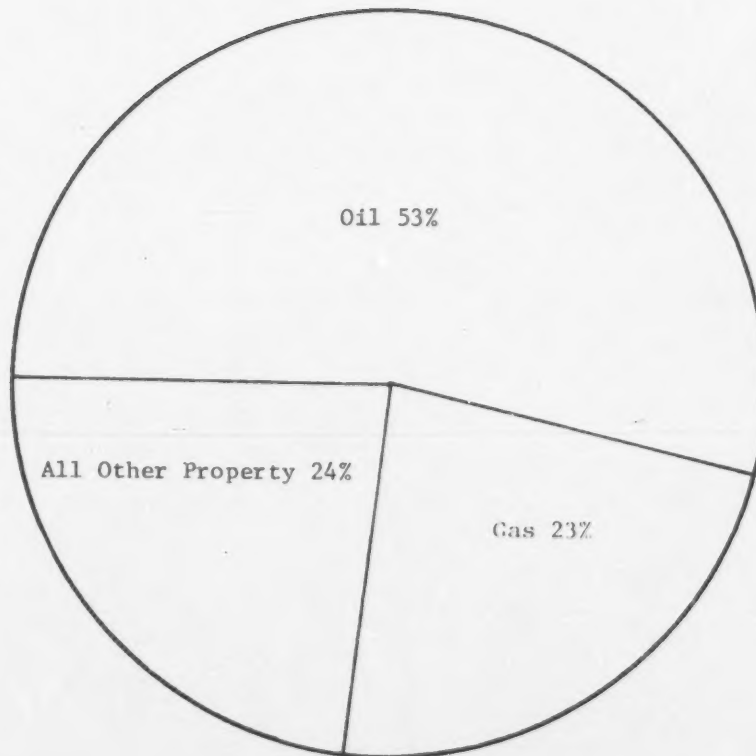
Rocky Mountain Energy's South Haystack Mine, 26 miles northeast of Evanston, was scheduled to go on line in 1982, but the project time table has been set back to 1984.

The other county mineral product is sand and gravel, with a 1982 production valued at \$944,184. This large sum reflects the amount of construction activity in the county.

Uinta County Valuation 1978 and 1983



1978 Total Valuation \$38,607,317



1983 Total Valuation \$452,131,219

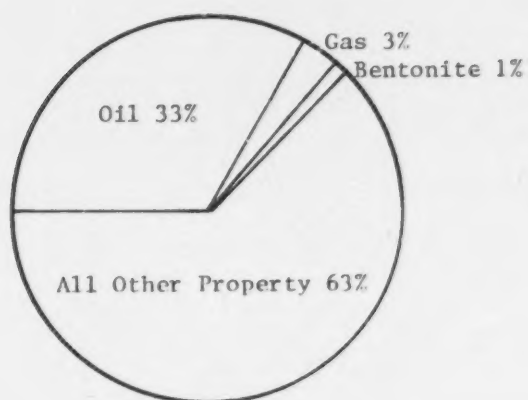
WASHAKIE COUNTY

Oil production was down by 286,000 barrels in 1982, while gas production again declined by 861,000 MCF. The current market surplus will disappear, and when demand rebounds, oil and gas production will rebound with it.

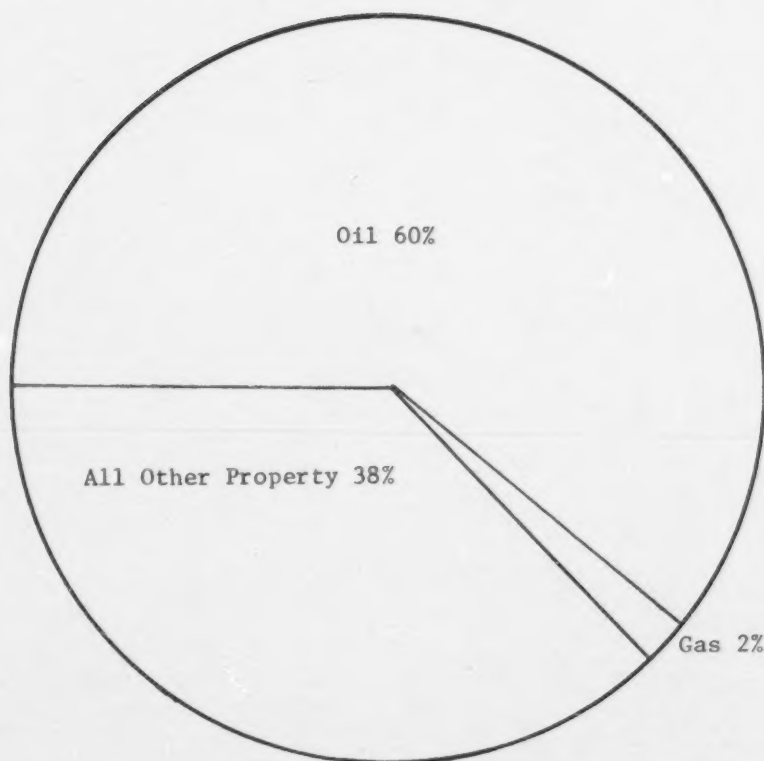
With the major increases in mineral unit valuations in recent years, the percentage of total assessed mineral valuation in the county has risen from 35% in 1971 to 62% in 1982.

County bentonite production was down 171,000 tons in 1982. Poor market conditions were responsible for this decline, and improvement is hinged on rebound by the economy.

Washakie County Valuation 1978 and 1983



1978 Total Valuation \$42,202,035



1983 Total Valuation \$97,773,469

WESTON COUNTY

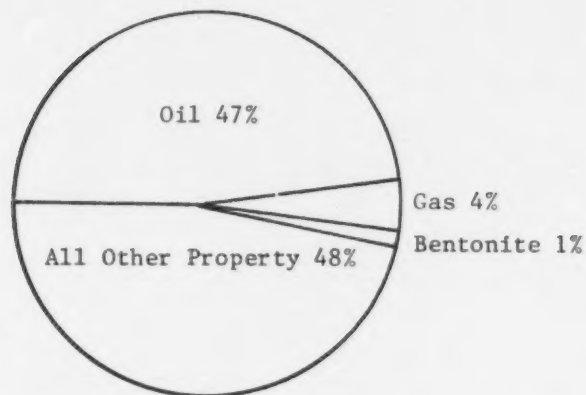
Minerals account for 74% of the assessed valuation in Weston County and oil accounts for 94% of the minerals valuation.

Oil production has been in a decline since the early 1960's, with the exception of 1969 and 1970, when there was a slight increase due to the beginning of secondary recovery techniques in the local oil fields. Production in the county increased by 312,000 barrels in 1982, so despite a drop of \$3.49 in the value per barrel, total oil valuation rose by \$1.7 million.

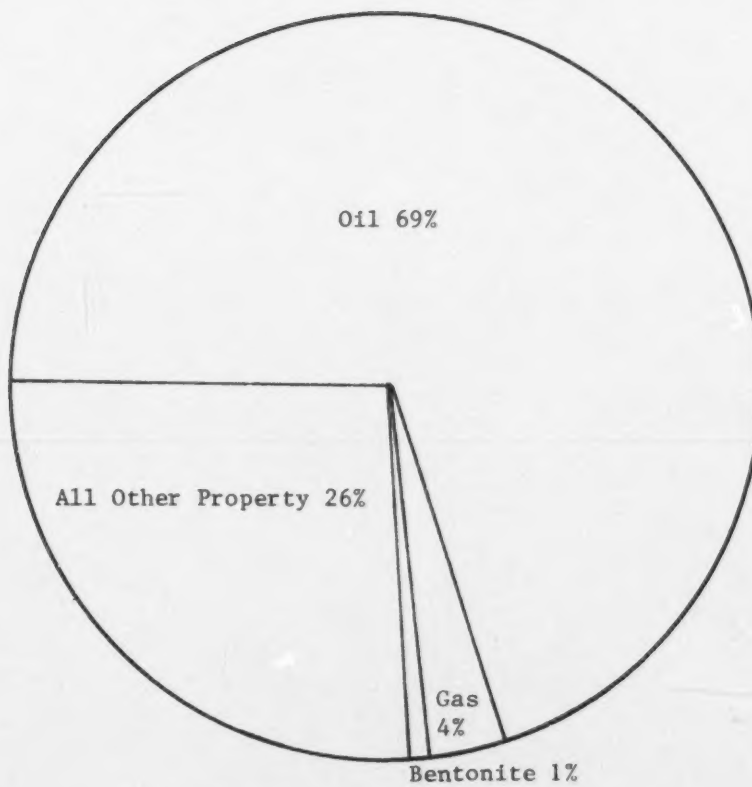
Natural gas production rose from 800,383 to 1,594,853 MCF, along with a slight increase in unit valuation of \$.02 per MCF. Weston County natural gas production was valued at \$4,517,197, an increase of \$227,000 from 1981.

Bentonite is responsible for most of the other mineral production in the county. Production was 140,000 tons in 1982, and production will show a continued short term decrease due to lowered well drilling activity.

Weston County Valuation 1978 and 1983



1978 Total Valuation \$50,291,917



1983 Total Valuation \$126,839,423

WYOMING MINERAL PRODUCTION AND VALUATION
1978 - 1982

1978 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	159,468							16,160
Big Horn	6,487,748	936,812				1,079,136		179,821
Campbell	29,417,301	22,089,981	27,934,626					
Carbon	1,430,327	12,465,184	12,371,753	1,688,987				
Converse	7,609,226	15,556,431	2,977,413	1,663,010				
Crook	2,615,767	142,002				2,179,795		
Fremont	6,057,150	46,136,690		1,935,281	4,575,356			
Goshen	7,044							
Hot Springs	10,378,229	47,040	4,878			6,694		
Johnson	3,383,877	1,474,243				233,287		
Laramie	322,960	16,216						
Lincoln	160,883	9,720,818	4,957,815					
Natrona	7,717,967	7,992,213		229,792		84,671		
Niobrara	750,083	167,829						
Park	26,509,138	12,870,732						148,922
Platte					439,495			
Sheridan	211,692		2,859,993					
Sublette	2,262,952	43,887,193						
Sweetwater	11,883,847	87,898,253	5,349,655				9,974,237	
Teton								
Uinta	1,562,757	5,061,705						
Washakie	1,927,607	6,227,131				286,318		
Weston	1,933,103	1,034,502				94,292		
TOTAL	122,789,126	273,724,975	56,456,133	5,517,070	5,014,851	3,626,652	9,974,237	344,903

1979 Assessed Valuation

on

1978 Production

County	Oil	Gas	Coal	Uranium	Iron Ore	Bentonite	Trona	Misc.	Total
Albany	\$ 1,322,188	\$ 572,736				\$ 3,292,407		\$ 632,164	\$ 1,954,357
Big Horn	51,546,691	30,397,671	122,438,018					491,737	55,901,571
Campbell	302,418,213	10,393,123	146,443,571	34,638,349				3,900	455,257,802
Carbon	11,289,512	25,289,978	10,420,946	10,889,946				17,847	202,782,402
Converse	94,615,601	41,194				4,269,771		87,018	141,303,489
Crook	22,328,120	47,216,133		25,805,402	14,641,139			222,401	26,861,486
Fremont	44,090,963							131,951	131,885,488
Goshute	107,590							13,018	120,608
Hot Springs	83,627,536	15,588	46,829			21,757		1,200	83,712,910
Johnson	31,634,663	461,417				517,187		136,160	32,749,427
Laramie	3,178,652	1,358						1,828,682	5,008,692
Lincoln	1,800,378	11,961,635	49,691,693			187,633		14,598	63,468,304
Natrona	57,673,890	6,207,145		1,862,841				410,696	66,342,205
Niobrara	9,478,905	36,859							9,515,764
Park	177,375,216	6,921,395						496,090	184,792,701
Platte					2,417,223			2,160,154	4,577,327
Sheridan	1,752,722		39,127,101					204,726	41,084,549
Sublette	19,896,375	38,917,745						5,160	58,819,280
Sweetwater	121,101,652	78,694,863	40,738,497				79,793,896	237,895	320,566,803
Teton								177,399	177,399
Uinta	19,818,627	4,019,692						90,513	23,928,832
Washakie	16,257,806	1,358,760				635,626		51,785	18,303,977
Weston	27,984,993	1,881,958				1,627,464		598	31,495,019
Total	\$1,099,300,299	\$264,389,250	\$408,906,655	\$73,196,538	\$17,058,362	\$10,551,845	\$79,793,896	\$7,238,143	\$1,960,607,387
% of Total	56	13	21	4	1	.6	4	.4	

1979 Valuation Per Unit

County	Oil \$/bbls	Gas \$/MCF	Coal \$/tons	Uranium \$/tons	Iron Ore \$/tons	Bentonite \$/tons	Trona \$/tons	Gypsum \$/tons
Albany	\$ 8.29							\$1.60
Big Horn						3.05		2.60
Campbell	10.28	1.38	4.38					
Carbon			11.84	20.51				
Converse			3.50	6.55				
Crook						1.96		
Fremont		1.02		13.33	3.20			
Goshen								
Hot Springs	8.35		9.60			3.25		
Johnson						2.22		
Laramie						2.22		
Lincoln			10.02					
Natrona				8.11		2.22		
Niobrara								
Park	6.69							2.60
Platte					5.50			
Sheridan			13.68					
Sublette		.89						
Sweetwater	10.19	.90	7.62				8.00	
Teton								
Uinta	12.68							
Washakie						2.22		
Weston						17.26		
State Average	\$ 8.95	\$.97	\$ 7.24	\$13.27	\$4.35	\$ 2.91	\$8.00	\$2.55
Increase or Decrease Over 1978	-\$.10	+\$.30	-\$.49	-\$ 1.75	+\$.32	+\$.54	-\$.30	+\$.45

1979 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	146,429							17,770
Big Horn	6,143,501	2,482,520				1,449,483		160,268
Campbell	24,689,520	19,731,572	39,322,640					
Carbon	2,163,503	19,152,942	10,644,086	1,153,902				
Converse	7,002,401	13,791,617	3,004,854	1,898,391				
Crook	2,573,420	103,235				1,822,662		
Fremont	6,229,773	53,983,673		1,886,906	4,347,250			
Goshen	5,589							
Hot Springs	9,031,264	16,078	9,207			81,348		
Johnson	3,219,622	1,038,896		98,891		341,796		
Laramie	265,012							
Lincoln	132,234	11,167,328	5,083,240					
Natrona	7,538,813	8,199,305		474,255		50,898		
Niobrara	1,250,981	190,557						
Park	25,975,683	11,989,008				29,904		147,952
Platte					432,684			
Sheridan	187,804		3,536,608					
Sublette	1,951,420	46,291,372						
Sweetwater	9,959,104	115,087,044	7,191,938				11,771,985	
Teton								
Uinta	3,633,587	22,949,460						
Washakie	1,647,022	6,152,091				369,399		
Weston	1,931,340	995,482				333,752		
TOTAL	115,678,022	333,322,180	68,792,573	5,512,345	4,799,934	4,479,242	11,771,985	325,990

1980 Assessed Valuation

on

1979 Production

County	Oil	Gas	Coal	Uranium	Iron Ore	Bentonite	Trona	Misc.	Total
Albany	\$ 1,892,499	\$	\$	\$	\$	\$	\$	\$1,203,457	\$ 3,095,956
Big Horn	56,923,753	4,703,756				4,880,699		452,938	66,961,146
Campbell	294,760,148	30,107,745	215,056,128					28,490	539,952,511
Carbon	23,343,752	28,031,579	157,312,492	29,309,717				144,383	238,141,923
Converse	113,336,096	27,549,885	13,071,115	14,771,671				133,117	168,861,884
Crook	30,543,237	26,061				6,471,542		287,613	37,328,453
Fremont	63,044,286	78,737,117		21,250,042	14,345,925			194,271	177,571,641
Goshen	132,575							12,738	145,313
Hot Springs	88,744,551	5,282	127,977			321,325			89,199,135
Johnson	39,628,708	771,293		1,243,718		994,869		162,251	42,800,839
Laramie	3,910,717							2,194,596	6,105,313
Lincoln	2,482,497	16,590,692	58,467,419					20,822	77,561,430
Natrona	69,694,225	10,694,869		2,715,283		154,729		555,744	83,814,850
Niobrara	24,949,601	43,190							24,992,791
Park	212,607,228	9,089,390				97,188		347,519	222,341,325
Platte					2,531,201			3,054,838	5,586,039
Sheridan	1,874,569		55,171,085					219,557	57,265,211
Sublette	24,657,776	49,054,915						2,527	73,715,218
Sweetwater	117,848,499	156,845,560	72,863,769				108,890,862	369,399	456,818,089
Teton								83,586	83,586
Uinta	51,297,201	40,346,059						120,960	91,764,220
Washakie	18,871,870	1,472,565				969,495		57,282	21,371,212
Weston	44,640,388	2,061,337				1,778,902		1,047	47,981,674
Total	\$1,285,184,176	\$456,131,295	\$572,648,542	\$69,290,431	\$16,877,126	\$15,168,749	\$108,890,862	\$9,847,135	\$2,534,038,316
% of Total	50	18	23	3	1	1	4	.6	

* Includes \$578,557 valuation adjustment of 1978 production.

1980 Valuation Per Unit

County	Oil \$/bbls	Gas \$/MCF	Coal \$/tons	Uranium \$/tons	Iron Ore \$/tons	Bentonite \$/tons	Irona \$/tons	Gypsum \$/tons
Albany	\$12.92		\$	\$	\$	\$	\$	\$1.60
Big Horn	9.27	1.89				3.37		2.70
Campbell	11.94	1.53	5.47					
Carbon	10.79	1.46	14.78	25.40				
Converse	16.19	2.00	4.35	7.78				
Crook	11.87	.25				3.55		
Fremont	10.12	1.46		11.26	3.30			
Goshen	23.72							
Hot Springs	9.83	.33	13.90			3.95		
Johnson	12.31	.59		12.58		2.91		
Laramie	14.76							
Lincoln	18.77	1.49	11.50					
Natrona	9.24	1.30		5.73		3.04		
Niobrara	19.94	.23						
Park	8.18	.76						2.70
Platte					5.85			
Sheridan	9.98		15.60					
Sublette	12.64	1.06						
Sweetwater	11.83	1.36	10.13				9.25	
Teton								
Uinta	14.12	1.76						
Washakie	11.46	.24				2.62		
Weston	23.11	2.07				3.83		
State Average	\$11.11	\$1.37	\$ 8.32	\$12.57	\$3.53	\$3.39	\$9.25	\$2.64
Increase or Decrease Over 1979	+\$ 2.16	+\$.40	+\$ 1.08	-\$.70	-\$.82	+\$.48	+\$1.25	+\$.09

1980 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	154,632							15,948
Big Horn	5,736,181	2,766,860				1,270,100		163,498
Campbell	21,333,825	17,825,038	58,157,230	*				
Carbon	2,148,035	37,778,356	9,743,714	1,292,948				
Converse	7,095,507	13,995,581	3,152,635	1,694,299 ⁺				
Crook	2,737,805	139,882				1,438,867		
Fremont	6,433,461	50,445,398		2,048,536	4,631,167			
Goshen	2,288							
Hot Springs	9,034,240	9,343	18,293			21,524		
Johnson	3,107,763	714,660		5,717 ⁺		288,728		
Laramie	230,746							
Lincoln	228,846	19,934,979	4,989,771					
Natrona	6,976,032	6,434,241		310,837		18,178		
Niobrara	1,406,707	193,523						
Park	24,698,116	11,239,021			245,365	46,032		116,725
Platte								
Sheridan	205,232	16,403	4,327,594					
Sublette	1,802,016	43,866,231						
Sweetwater	9,983,493	115,350,442	10,138,301				12,159,241	
Teton								
Uinta	6,735,586	24,053,152						
Washakie	2,242,959	4,053,722				224,316		
Weston	1,840,074	701,684				276,968		
TOTAL	114,143,544	349,518,516	90,527,538	5,352,334 ⁺	4,876,532	3,584,713	12,159,241	296,171

* In situ

1981 Assessed Valuation

on

1980 Production

County	Oil	Gas	Coal	Uranium	Iron Ore	Bentonite	Trona	Misc.	Total
Albany	\$ 3,473,013	\$ 5,692,228				\$ 4,331,059		\$ 1,117,870	\$ 4,590,883
Big Horn	94,417,253	35,087,319	343,171,063	94,590				500,231	106,568,397
Cambell	434,338,123	91,337,606	154,386,154	31,288,920				75,057	812,766,152
Carbon	49,695,901	33,158,188	14,186,858	18,928,024				104,247	326,812,828
Converse	200,299,800	37,877				5,500,012		133,985	266,707,705
Crook	59,277,459	74,309,375		26,583,322	17,135,318			277,606	65,092,954
Fremont	112,486,893							17,516,699	230,896,289
Goshen	88,536							129,748	218,284
Hot Springs	207,246,019	7,434	273,480			85,020		125,178	207,652,111
Johnson	68,163,722	1,587,850		618,379		761,574		140,620	71,272,145
Laramie	5,935,930							3,002,107	8,938,037
Lincoln	6,124,162	42,505,434	66,454,070					17,521	115,101,187
Natrona	110,995,042	12,476,893		3,466,867		52,695		721,081	127,712,578
Niobrara	40,938,920	48,580						9,730	40,997,230
Park	437,476,833	10,978,356				179,525		455,147	449,089,861
Platte					1,496,727			3,976,948	3,976,948
Sheridan	3,134,705	35,981	66,212,188					210,382	69,593,656
Sublette	37,673,281	58,521,792						8,363	96,203,487
Sweetwater	179,934,634	264,989,221	128,949,921				138,925,498	248,543	713,047,817
Teton								115,458	115,458
Uinta	149,875,372	36,280,911						524,729	186,681,012
Washakie	53,037,618	2,274,434				459,848		29,955	55,801,855
Weston	65,081,342	1,757,898				1,116,380		750	67,956,370
Total	\$2,319,694,558	\$671,087,378	\$773,633,734	\$80,981,002	\$18,632,045	\$12,480,113	\$138,925,498	\$27,735,779	\$4,026,165,628
% of Total	58	17	19	2	.5	.5	3	5	

1981 Valuation Per Unit

County	Oil \$/bbls	Gas \$/MCF	Coal \$/tons	Uranium \$/tons	Iron Ore \$/tons	Bentonite \$/tons	Trona \$/tons	Gypsum \$/tons
Albany	\$22.46	\$	\$	\$	\$	\$	\$	\$1.75
Big Horn	16.46	2.06				3.41		2.90
Campbell	20.36	1.97	5.90	In situ				
Carbon	23.14	2.42	15.84	24.20				
Converse	28.23	2.37	4.50	In situ				
Crook	21.65	.27				3.82		
Fremont	17.46	1.47		12.98	3.70			
Goshen	38.70							
Hot Springs	22.94	.80	14.95			3.95		
Johnson	21.93	2.22		In situ		2.64		
Laramie	25.72							
Lincoln	26.76	2.13	13.32					
Natrona	15.91	1.94		11.15		2.90		
Niobrara	29.10	.25						
Park	17.71	.98				3.90		2.90
Platte					6.10			
Sheridan	15.27	2.19	15.30					
Sublette	20.91	1.33						
Sweetwater	18.02	2.30	12.72				11.43	
Teton								
Uinta	22.25	1.51						
Washakie	23.15	.56				2.05		
Weston	35.37	2.31				4.03		
State Average	\$20.31	\$1.92	\$ 8.55	\$16.79	\$3.82	\$3.48	\$11.43	\$2.84
Increase or Decrease Over 1980	+\$ 9.20	+\$.55	+\$.23	+\$ 4.22	+\$.29	+\$.09	+\$ 2.18	+\$.20

1981 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	155,375							15,384
Big Horn	5,313,639	3,238,237				1,557,955		149,696
Campbell	20,228,422	16,212,571	68,066,432	In situ				
Carbon	3,233,985	52,026,038	8,352,914	904,642				
Converse	6,588,690	12,189,486	3,219,001	1,298,808				
Crook	2,649,734	125,662				1,896,932		
Fremont	6,165,686	52,517,672		1,183,405	4,667,292			
Goshen	1,431							
Hot Springs	9,149,952	155,076	35,617			122,702		
Johnson	2,667,111	1,272,929		In situ		277,014		
Laramie	234,215							
Lincoln	236,584	24,960,246	4,997,142					
Natrona	6,897,806	5,998,034		201,971		75,059		
Niobrara	1,384,442	126,423						
Park	22,642,100	6,163,521				41,263		118,597
Platte								
Sheridan	169,494	32,639	2,736,409					
Sublette	1,751,963	38,166,533						
Sweetwater	9,270,498	110,756,980	11,003,007	971,855			11,787,731	
Teton								
Uinta	8,425,274	24,887,910						
Washakie	2,344,484	3,445,712				251,360		
Weston	2,401,715	800,383				582,720		
TOTAL	111,912,600	353,076,052	98,410,522	4,560,683	4,667,292	4,805,005	11,787,731	283,677

1982 Assessed Valuation

on

1981 Production

County	Oil	Gas	Coal	Uranium	Iron Ore	Bentonite	Trona	Misc.	Total
Albany	\$ 5,354,264	\$	\$	\$	\$	\$	\$	\$ 1,705,649	\$ 7,059,913
Big Horn	159,220,581	8,668,272				6,184,587		462,838	174,970,396
Campbell	665,551,293	36,144,672	508,381,871	116,730				199,397	1,210,393,963
Carbon	111,712,053	186,661,292	158,519,134	43,170,592				58,284	500,121,355
Converse	234,060,727	31,633,649	18,670,206	13,255,920				104,862	297,725,364
Crook	84,631,167	39,045				8,780,809		261,275	93,216,462
Fremont	192,734,243	140,188,520		16,503,479	18,202,439			245,454	367,874,135
Goshen	51,497							373,136	424,633
Hot Springs	278,589,311	336,150	617,955			490,808		19,949	280,054,173
Johnson	89,813,437	2,782,158		91,074		837,400		225,378	93,759,447
Laramie	8,371,335							2,606,254	10,977,589
Lincoln	7,574,444	73,599,211	77,600,124					229,489	159,003,268
Natrona	234,571,192	19,109,848		3,528,292		304,835		753,431	258,267,598
Niobrara	48,310,067	72,109						46,450	48,428,626
Park	666,933,790	13,575,848				138,231		443,020	681,240,864
Platte								1,538,934	1,538,934
Sheridan	5,873,208	77,380	54,454,539					311,544	60,716,671
Sublette	60,807,536	64,566,069						10,871	125,384,476
Sweetwater	317,943,973	318,835,403	171,451,863	573,394			147,417,617	309,700	956,531,950
Teton								126,720	126,720
Uinta	277,534,024	77,787,956						574,131	355,896,111
Washakie	74,193,491	2,228,115				741,512		56,168	77,219,286
Weston	86,264,521	2,251,284				3,398,202		15,842	91,929,849
Total	\$3,610,096,154	\$978,556,981	\$989,695,692	\$77,239,481	\$18,202,439	\$20,876,884	\$147,417,617	\$10,678,776	\$5,852,764,024
% of Total	61	17	17	1	.35	.40	3	.25	

1982 Valuation Per Unit

County	Oil \$/bbls	Gas \$/MCF	Coal \$/tons	Uranium \$/tons	Iron Ore \$/tons	Bentonite \$/tons	Trona \$/tons	Gypsum \$/tons
Albany	\$34.46	\$	\$	\$	\$	\$	\$	\$1.75
Big Horn	29.96	2.68				3.97		2.90
Campbell	32.90	2.23	7.47	In situ				
Carbon	34.54	3.59	18.98	47.72				
Converse	35.52	2.60	5.80	10.21				
Crook	31.94	.31				4.63		
Fremont	31.26	2.67		13.95	3.90			
Goshen	35.99							
Hot Springs	30.45	2.17	17.35			4.00		
Johnson	33.67	2.19		In situ		3.02		
Laramie	35.74							
Lincoln	32.02	2.95	15.53					
Natrona	34.01	3.19		17.47		4.06		
Niobrara	34.89	.57						
Park	29.46	2.20				3.35		2.90
Platte								
Sheridan	34.65	2.37	19.90					
Sublette	34.71	1.69						
Sweetwater	34.30	2.88	15.58	.59			12.51	
Teton								
Uinta	32.94	3.13						
Washakie	31.65	.66				2.95		
Weston	35.92	2.81				5.83		
State Average	\$32.26	\$2.77	\$10.06	\$16.89	\$3.90	\$4.34	\$12.51	\$2.84
Increase or Decrease Over 1981	+\$11.95	+\$.85	+\$ 1.51	+\$.10	+\$.08	+\$.86	+\$ 1.08	---

1982 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	143,602							19,237
Big Horn	5,265,632	3,569,873				872,623		119,707
Campbell	20,221,550	17,188,170	77,927,442	611,684				
Carbon	2,846,347	47,175,586	5,052,927					
Converse	6,282,905	10,229,672	2,821,931	1,326,504*				
Crook	2,944,382	63,253				947,008		
Fremont	5,618,212	55,129,543		808,687	3,276,005			
Goshen	14,060							
Hot Springs	8,514,553	198,545	66,711			67,707		
Johnson	2,400,517	837,145				175,133		
Laramie	279,116							
Lincoln	240,021	21,937,007	4,314,363					
Natrona	6,806,895	8,303,298		167,335		55,730		
Niobrara	1,234,192	503,039						
Park	21,975,838	5,072,918				7,173		124,049
Platte								
Sheridan	231,030	22,004	3,002,677					
Sublette	1,593,581	39,564,219						
Sweetwater	8,737,658	104,279,682	10,828,045	981,390*			10,073,690	
Teton								
Uinta	7,934,059	32,929,608						
Washakie	2,057,877	2,594,322				80,474		
Weston	2,713,435	1,594,853				140,066		
TOTAL	108,055,462	351,192,737	104,014,096	3,895,510	3,276,005	2,345,914	10,073,690	262,993

* Includes 1,795,348 tons of ore listed as clean-up (and not totaled) by Department of Revenue and Taxation
Ad Valorem Tax Division

1983 Assessed Valuation

on

1982 Production

County	Oil	Gas	Coal	Uranium	Iron Ore	Bentonite	Trona	Misc.	Total
Albany	\$ 4,275,672	\$	\$	\$	\$	\$	\$	\$ 860,260	\$ 5,135,932
Big Horn	142,682,163	9,519,109				3,730,503		384,203	156,315,978
Campbell	615,772,477	38,907,822	634,464,846	5,269				246,654	1,289,397,068
Carbon	89,544,572	197,236,182	121,047,062	31,874,429				93,239	439,795,484
Converse	204,076,451	26,369,229	17,354,876	5,485,464				116,060	253,402,080
Crook	81,470,049	12,311				3,889,599		214,604	85,586,563
Fremont	160,126,236	208,304,791		7,033,560	11,466,018			137,971	387,068,576
Goshen	441,575							725,018	1,166,593
Hot Springs	233,566,723	420,205	950,632			267,443		15,002	235,220,005
Johnson	73,574,288	2,028,246				583,624		144,695	76,330,853
Laramie	9,042,490							1,534,884	10,577,374
Lincoln	7,211,334	78,682,018	76,821,811					100,545	162,815,708
Natrona	214,618,580	33,284,192		1,079,761		224,282		606,284	249,832,099
Niobrara	39,705,188	1,309,469						19,020	41,033,677
Park	586,049,250	15,987,010				31,920		454,155	602,522,335
Platte								1,153,363	1,153,363
Sheridan	7,279,846	57,290	62,742,657					253,082	70,332,875
Sublette	50,965,300	73,243,219						14,864	124,223,383
Sweetwater	274,723,792	337,876,912	200,263,256	78,511			121,583,686	229,532	934,755,689
Teton								144,509	144,509
Uinta	240,890,894	102,486,414						944,184	344,321,492
Washakie	58,373,862	1,809,826				197,161		26,542	60,407,391
Weston	87,997,720	4,517,197				688,634		60,952	93,264,503
Total	\$3,182,388,462	\$1,132,051,442	\$1,113,645,140	\$45,555,994	\$11,466,018	\$9,613,166	\$121,583,686	\$8,498,601	\$5,624,803,530
% of Total	57	20	20	1	--	--	2	--	

1983 Valuation Per Unit

County	Oil \$/bbls	Gas \$/MCF	Coal \$/tons	Uranium \$/tons	Iron Ore \$/tons	Bentonite \$/tons	Trona \$/tons	Gypsum \$/tons
Albany	\$29.77	\$	\$	\$	\$	\$	\$	\$1.75
Big Horn	27.10	2.67				4.28		2.90
Campbell	27.79	2.26	8.14					
Carbon	31.46	4.18	23.96	52.10				
Converse	32.48	2.58	6.15	9.88+clean-up*				
Crook	27.67	.19				4.11		
Fremont	28.50	3.78		8.55	3.50			
Goshen	31.41							
Hot Springs	27.43	2.12	14.25			3.95		
Johnson	30.65	2.42				3.33		
Laramie	32.40							
Lincoln	30.04	3.59	17.81					
Natrona	31.53	4.00		6.37		4.02		
Niobrara	32.17	2.60						
Park	26.67	3.15				4.45		2.90
Platte								
Sheridan	31.51	2.60	20.90					
Sublette	31.98	1.85						
Sweetwater	31.44	3.24	18.49	* clean-up			12.07	
Teton								
Uinta	30.36	3.11						
Washakie	28.37	.70				2.45		
Weston	32.43	2.83				4.92		
State Average	\$29.45	\$3.22	\$10.71	\$21.69	\$3.50	\$4.10	\$12.07	\$2.82
Increase or Decrease Over 1982	-\$ 2.81	+\$.45	+\$.55	+\$ 4.80	-\$.40	-\$.24	-\$.44	-\$.02

*Unit valuations for clean-up operations are low and are not included.

WYOMING MINERAL PRODUCTION ESTIMATES

1983 - 1987

1983 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	140,000							20,000
Big Horn	5,285,000	3,500,000				922,000		120,000
Campbell	20,500,000	18,000,000	81,500,000	650,000				
Carbon	2,800,000	52,000,000	4,500,000					
Converse	5,200,000	10,000,000	3,000,000	600,000				
Crook	2,800,000	130,000				990,000		
Fremont	5,600,000	58,300,000		1,200,000	3,250,000			
Goshen	15,000							
Hot Springs	8,250,000	200,000	80,000			75,000		
Johnson	2,200,000	900,000				200,000		
Laramie	250,000							
Lincoln	200,000	22,000,000	5,500,000					
Natrona	6,000,000	9,000,000		150,000		70,000		
Niobrara	1,000,000	600,000						130,000
Park	21,000,000	6,000,000				8,000		
Platte								
Sheridan	200,000	30,000	3,000,000					
Sublette	1,400,000	42,000,000						
Sweetwater	8,700,000	110,000,000	10,500,000				10,500,000	
Teton								
Uinta	8,000,000	38,000,000						
Washakie	2,000,000	3,000,000				85,000		
Weston	2,500,000	2,000,000				150,000		
TOTAL	104,000,000	375,000,000	108,080,000	2,600,000	3,250,000	2,500,000	10,500,000	270,000

1984 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	140,000							20,000
Big Horn	4,785,000	3,500,000				1,000,000		122,000
Campbell	21,000,000	25,000,000	86,000,000	650,000				
Carbon	2,600,000	62,000,000	4,500,000					
Converse	5,000,000	12,000,000	3,500,000	600,000				
Crook	2,600,000	150,000				1,200,000		
Fremont	5,400,000	65,000,000		1,200,000	3,500,000			
Goshen	15,000							
Hot Springs	7,850,000	200,000	40,000			100,000		
Johnson	2,000,000	1,000,000				250,000		
Laramie	250,000							
Lincoln	200,000	30,000,000	5,500,000					
Natrona	5,560,000	12,000,000		150,000		100,000		
Niobrara	800,000	600,000						
Park	21,000,000	10,000,000				10,000		133,000
Platte								
Sheridan	200,000	50,000	3,500,000					
Sublette	1,200,000							
Sweetwater	8,200,000	125,000,000	11,000,000				11,000,000	
Teton								
Uinta	8,000,000	52,000,000						
Washakie	2,000,000	4,000,000				100,000		
Weston	2,200,000	2,500,000				240,000		
TOTAL	101,000,000	405,000,000	114,040,000	2,600,000	3,500,000	3,000,000	11,000,000	275,000

1985 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	135,000							20,000
Big Horn	4,300,000	4,500,000				1,200,000		125,000
Campbell	21,000,000	35,000,000	89,000,000	650,000				
Carbon	2,600,000	75,000,000	5,500,000					
Converse	4,800,000	16,000,000	3,750,000	600,000				
Crook	2,500,000	250,000				1,400,000		
Fremont	5,100,000	75,000,000		1,300,000	3,500,000			
Goshen	15,000							
Hot Springs	7,500,000	230,000	50,000			100,000		
Johnson	2,000,000	1,200,000				275,000		
Laramie	200,000							
Lincoln	200,000	40,000,000	5,750,000					
Natrona	5,450,000	15,000,000		150,000				
Niobrara	700,000	750,000				120,000		
Park	20,000,000	12,000,000				10,000		140,000
Platte								
Sheridan	200,000	70,000	3,750,000					
Sublette	1,000,000							
Sweetwater	8,100,000	140,000,000	12,700,000				13,000,000	
Teton								
Uinta	8,100,000	76,000,000						
Washakie	2,000,000	6,000,000				125,000		
Weston	2,000,000	3,000,000				275,000		
TOTAL	98,000,000	500,000,000	120,000,000	2,700,000	3,500,000	3,500,000	13,000,000	285,000

1986 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	135,000							20,000
Big Horn	4,000,000	5,000,000				1,400,000		125,000
Campbell	21,000,000	35,000,000	93,000,000	600,000				
Carbon	2,500,000	79,500,000	6,200,000					
Converse	4,400,000	16,500,000	4,000,000	650,000				
Crook	2,500,000	250,000				1,650,000		
Fremont	4,800,000	75,500,000		1,350,000	3,250,000			
Goshen	15,000							
Hot Springs	7,000,000	230,000	50,000			135,000		
Johnson	1,900,000	1,200,000				320,000		
Laramie	200,000							
Lincoln	200,000	42,000,000	6,250,000					
Natrona	5,250,000	15,500,000		200,000				
Niobrara	600,000	750,000						
Park	19,800,000	12,500,000				20,000		140,000
Platte								
Sheridan	200,000	70,000	4,000,000					
Sublette	1,000,000							
Sweetwater	7,600,000	146,000,000	13,500,000				14,000,000	
Teton								
Uinta	8,100,000	80,000,000						
Washakie	1,900,000	6,500,000				160,000		
Weston	1,900,000	3,500,000				310,000		
TOTAL	95,000,000	520,000,000	125,000,000	2,800,000	3,250,000	4,000,000	14,000,000	285,000

1987 Production

County	Oil (Bbls)	Gas (MCF)	Coal (Tons)	Uranium (Tons)	Iron Ore (Tons)	Bentonite (Tons)	Trona (Tons)	Gypsum (Tons)
Albany	135,000							20,000
Big Horn	3,800,000	5,000,000				1,450,000		127,000
Campbell	20,800,000	35,000,000	94,500,000	600,000				
Carbon	2,400,000	80,500,000	6,900,000					
Converse	4,300,000	16,700,000	4,000,000	650,000				
Crook	2,400,000	250,000				1,705,000		
Fremont	4,700,000	75,700,000		1,350,000	3,250,000			
Goshen	15,000							
Hot Springs	6,900,000	230,000	50,000			135,000		
Johnson	1,800,000	1,200,000				320,000		
Laramie	200,000							
Lincoln	200,000	42,300,000	6,700,000					
Natrona	5,000,000	15,500,000		200,000				
Niobrara	600,000	750,000						
Park	19,550,000	12,700,000				20,000		143,000
Platte								
Sheridan	200,000	70,000	4,000,000					
Sublette	1,000,000							
Sweetwater	7,400,000	147,000,000	14,000,000				14,000,000	
Teton								
Uinta	8,000,000	82,000,000						
Washakie	1,800,000	6,550,000				160,000		
Weston	1,800,000	3,550,000				310,000		
TOTAL	93,000,000	525,000,000	130,050,000	2,800,000	3,250,000	4,100,000	14,000,000	290,000

SELECTED REFERENCES

- Barlow and Haun, Inc., 1978, Oil and Gas Production, Reserves, and Resources in Wyoming, 18 pp, with appendices.
- Browne, Theodore D., and Harvey, Edward F., 1975, Wyoming Energy Consumption: Minerals, Fuels, Electrical Generation and Agricultural Sectors, a report prepared for the Mineral Development Division, Department of Economic Planning and Development, 69 pp.
- Cameron Engineers, 1969, Review and Forecast, Wyoming Mineral Industries, a report for the Wyoming Natural Resource Board and the State Water Planning Program, 3 volumes, 1195 pp.
- Geological Survey of Wyoming, 1979, Mines and Minerals Map of Wyoming.
- Glass, Gary B., 1978, Wyoming Coal Fields, 1978, Public Information Circular #9, Geological Survey of Wyoming, 91 pp.
- Glass, Gary B., 1982, Description of Wyoming Coal Fields and Seam Analyses, Reprint #43, Geological Survey of Wyoming.
- Glass, Gary B., et al, 1983, Minerals Outlook for Wyoming, February, 1983, Information Circular, Geological Survey of Wyoming, 17 pp.
- Glass, Gary B., 1980, Wyoming Coal Production and Summary of Coal Contracts, Geological Survey of Wyoming, Public Information Circular #12, 99 pp.
- Quality Development Associates, Inc., 1978, Wyoming's Uranium Industry - Status, Impacts and Trends, 83 pp.
- Wilson, William H., Osterwald, Doris B., and Long, Joseph, Jr., 1966, Mineral Resources of Wyoming, Bulletin 50, Geological Survey of Wyoming, 285 pp.
- Wyoming Department of Revenue and Taxation, Ad Valorem Tax Division, 1982, Annual Report.
- Wyoming Oil and Gas Conservation Commission, 1975, Production Decline Curves for Selected Wyoming Fields.
- Wyoming State Inspector of Mines, 1982, Annual Report.
- Wyoming Department of Economic Planning and Development, 1978, Mineral Development Monitoring System, as updated.
- VerPloeg, Alan J., DeBruin, Rodney H., and Lageson, David R., 1980, Oil and Gas Map of Wyoming, Geological Survey of Wyoming.
- VerPloeg, Alan J., 1982, Wyoming's Oil and Gas Industry, Public Information Circular #17, Geological Survey of Wyoming, 20 pp.
- VerPloeg, Alan J., DeBruin, Rodney H., 1982, The Search for Oil and Gas in the Idaho-Wyoming Salient of the Overthrust Belt, Report of Investigations #21, Geological Survey of Wyoming, 108 pp.